



CENTER FOR APPLIED RESEARCH
AND EDUCATIONAL IMPROVEMENT
UNIVERSITY OF MINNESOTA



**COLLEGE POSSIBLE
COLLEGE PROGRAM
SOCIAL INNOVATION FUND
YEAR 4 (FINAL) IMPACT AND IMPLEMENTATION
EVALUATION REPORT**

May 2018

Prepared by:
Debra Ingram, PhD
Danielle Dupuis, PhD
Jason Johnson, MEd
Romina Madrid, PhD

Research, Development and Engagement to Improve Education

The Social Innovation Fund (SIF) was a program that received funding from 2010 to 2016 from the Corporation for National and Community Service, a federal agency that engages millions of Americans in service through its AmeriCorps, Senior Corps, and Volunteer Generation Fund programs, and leads the nation's volunteer and service efforts. Using public and private resources to find and grow community-based nonprofits with evidence of results, SIF intermediaries received funding to award subgrants that focus on overcoming challenges in economic opportunity, healthy futures, and youth development. Although CNCS made its last SIF intermediary awards in fiscal year 2016, SIF intermediaries will continue to administer their subgrant programs until their federal funding is exhausted.

This report is based upon work supported by the Corporation for National and Community Service, Generation Next and Greater Twin Cities United Way through the Social Innovation Fund. Opinions or points of view expressed in this document are those of the authors and do not necessarily reflect the official position of, or a position that is endorsed by, the Corporation, Generation Next, United Way or the Social Innovation Fund Program.

How to Cite this Report

Ingram, D., Dupuis, D., Johnson, J. & Madrid, R. (2018). *College Possible College Program Social Innovation Fund Year 4 (Final) Impact and Implementation Evaluation Report 2016-2017*. Saint Paul, MN: University of Minnesota, College of Education and Human Development, Center for Applied Research and Educational Improvement.

Contact Information

Debra Ingram, PhD
Center for Applied Research and Educational Improvement
College of Education and Human Development
University of Minnesota
1954 Buford Avenue, Suite 425
Saint Paul, MN 55108
(612) 624-0300
d-ingram@umn.edu

Table of Contents

Executive Summary	1
Introduction	7
College Possible Program Description	7
Focus of the Evaluation	14
Methods.....	15
Impact Evaluation Design and Measures	15
Participants	16
Implementation Evaluation Data Collection Activities	16
Impact Evaluation Results.....	18
Data Analysis	18
Results for the 2013 Cohort’s Fourth Year of College.....	21
Results for the Combined Cohorts’ First and Second Years of College.....	22
Implementation Evaluation Results.....	23
Question 1: How many contacts occur between students and coaches, what is the duration of that contact, and what number and percentage of the contacts are two-way?	24
Question 2: What number and percentage of coach-student contacts are initiated by students, what is the duration of those contacts, and what number and percentage of the contacts are two-way? ..	26
Question 3: Which curriculum topics are addressed during the contact between coaches and students?	27
Question 4: To what extent do the interactions between coaches and students include the characteristics of quality coaching practices identified by College Possible for the coaching program?	29
Question 5: How well does the training and ongoing supervision of the coaches support the coaches to provide quality services?.....	31
Question 6: To what extent does the intensity and content of the coaching impact college persistence and graduation?	35

Table of Contents (Continued)

Question 7: To what extent does the percent and number of coach-student contacts that are initiated by the student, rather than the coach, impact college persistence and graduation?	43
Question 8: To what extent does the program's impact on persistence and graduation differ between these two groups of students: a) students who only had <i>in-person</i> communication with their coach and students who had a mix of <i>in-person</i> and <i>tech-based</i> communication with their coach b) students who only had <i>tech-based</i> communication with their coach??	43
Results of the Online Student Survey.....	43
Evaluation Results: Interpretation and Limitations	44
Interpretation of the Impact Evaluation Results.....	44
Limitations of the Impact Evaluation	45
Interpretation of the Implementation Evaluation Results.....	46
Limitations of the Implementation Evaluation	50
Conclusions and Recommendations.....	50
References	53
Appendix A: Baseline Equivalency Tables.....	54
Appendix B: Focus Group Questions for College Coaches.....	60
Appendix C: Impact Tables for the 2013 Cohort.....	62
Appendix D: Impact Tables for the Combined Cohorts	73
Appendix E: Sensitivity Analysis for Impact Evaluation	86

List of Tables

Table 1: Coaching Model Used at Each College.....	9
Table 2: Impact Variables Spring 2017	22
Table 3: Characteristics of Student-initiated Contacts and Coach-initiated Contacts	26
Table 4: Implementation of Quality Coaching Practices	30
Table 5: Intensity of Coach-Student Contact by Year	49

List of Figures

Figure 1: Evolution of College Possible’s College Coaching Approach, From Fall 2013 through Spring 2017	12
Figure 2: College Possible Program Model	13
Figure 3: Frequency of Contacts Between a Student and a Coach.....	24
Figure 4: Adjusted Frequency of the Duration of Contacts between Students and Coaches	25
Figure 5: Percent of Students Receiving Each Curriculum Topic	28
Figure 6: Percent of Students Receiving Each Topic when the Category of More than Two Topics Is Disaggregated	29
Figure 7: Student Retention by Whether Topic was Received	38
Figure 8: Average Cumulative GPA Spring 2017 by Whether Topic was Received	40
Figure 9: Percent of Cumulative Credits Completed by Spring 2017 by Topic	42

About this Report

This evaluation report is a Final Report on the College Possible College Program, which is intended to fulfill the SIF requirements to determine at least a moderate level of evidence¹ for funded projects. It includes impact and implementation evaluation results during the fourth year of college for the original cohort of Minneapolis or Saint Paul public high school graduates who began college in fall 2013 at one of six College Possible partner colleges located in the Twin Cities. The report also includes impact evaluation results for the first and second years of college for a combined cohort of Minneapolis or Saint Paul public high school graduates who began college in either fall 2013, fall 2014, or fall 2015 at one of six College Possible partner colleges located in the Twin Cities.

¹As defined in the *Social Innovation Fund: Content Requirements for Subgrantee Evaluation Plans (May 2013)*, a quasi-experimental design or a randomized controlled trial is necessary to attain a moderate level of evidence.

Executive Summary

About the College Possible College Program

College Possible is a college-readiness, access, and success organization that supports and coaches low-income college students through ACT and SAT test preparation, college application assistance, financial aid consulting, guidance during the transition from high school to college, and ongoing support towards degree completion. The non-profit organization is comprised of a national office in Saint Paul, MN, and six other offices that provide services in their local areas of: Portland, OR; Philadelphia, PA; Chicago, IL; Milwaukee, WI; Omaha, NE; and the state of Minnesota.

Students apply to College Possible's *high school program*² when they are sophomores in high school by submitting an application and completing an in-person interview. All students accepted to the high school program must have the following characteristics: they are from a low-income family, they have a GPA of 2.0 or higher in their sophomore year of high school, and they express interest in attending a 4-year college. Students who participate in College Possible during high school automatically become participants in College Possible's *college program*³ after graduating from high school, regardless of whether they enroll in college right after high school graduation.

The College Possible program model is based on a premise that barriers to college access and success are faced by low-income students are mostly identifiable and predictable. These barriers typically fall into three main areas: academic, financial, and social/cultural. By connecting high school students in supportive peer groups with other college-focused students and a trained coach, and utilizing a structured curriculum, measurement and reporting tools, and management support, the program proposes that it can provide students with the resources they need to successfully navigate the path to college completion.

This four-year evaluation was focused on the college program, and specifically, the college coaching program being implemented at six post-secondary institutions in the Minneapolis-Saint Paul metropolitan area beginning in fall semester 2013 with a single cohort of College Possible students who attended and graduated from a Minneapolis or Saint Paul public high school in spring 2013. In the final year of the study, we added two later cohorts of students to the impact evaluation, who attended the same high schools and enrolled at the same colleges as the original cohort.

Prior Research and Targeted Evidence

College Possible's high school program has achieved a moderate level of evidence through four external evaluations conducted over the past decade. When the SIF evaluation began, there had been an exploratory evaluation that established preliminary evidence, but there had not been a rigorous external evaluation of the college program. An ongoing external randomized control trial (RCT) examining the impact of College Possible programming was underway during the SIF evaluation. The RCT is focused on students who graduated from high school in 2012 and will follow them through college graduation.

² College Possible now calls this the "college access program."

³ College Possible now calls this the "college success program."

Results from the first three years of this SIF evaluation indicated there was no effect on students' persistence⁴ in college as measured by retention into the next academic year, cumulative GPA, or cumulative credits earned. Further, the three-year graduation rate for students attending two-year colleges was 7% for College Possible students and 3% for students in the comparison group. None of the students in either group who were attending two-year colleges had graduated after two years of college in spring 2015. Statistical tests were not run to examine the significance of these observed differences because the number of students who graduated was too small at that point in the evaluation study.

This report focuses on the results of the Year 4 impact and implementation evaluation for the 2013 cohort of students. In addition, the report describes impact evaluation results for the first and second years of College Possible for a combined cohort of students who began their first year of college in fall 2013, fall 2014, or fall 2015. The purpose of adding two new cohorts to the study design was to increase the power of the design, as detailed in the SEP Addendum (May 2016).

Evaluation Overview

The Greater Twin Cities United Way contracted with the University of Minnesota's Center for Applied Research and Educational Improvement (CAREI) to design and conduct the SIF evaluation of College Possible's college program in collaboration with College Possible. Throughout the four years of the SIF subgrant, the impact evaluation employed a quasi-experimental design to answer the confirmatory evaluation questions. The comparison groups were made up of students from the colleges who did not participate in College Possible during high school and also were not participating in the program during college. The comparison students were also graduates of Minneapolis and Saint Paul public high schools who enrolled in the same six colleges in fall 2013, fall 2014, or fall 2015. The students in the comparison group were selected through propensity score matching from among the larger group of Minneapolis and Saint Paul public high school graduates who enrolled in one of the six colleges. Data for the impact evaluation were provided by the six colleges from their administrative records at the completion of each spring term. College persistence was independently measured by three variables: student's cumulative GPA, student's cumulative credits earned, and college's retaining students into the next academic year for enrollment in classes during the following semester at their college. A fourth persistence variable, student's remedial course taking, was not included in the Year 4 analyses for the 2013 cohort because students generally register for remedial courses only during their first year of college.

To analyze the effect of College Possible on the students' cumulative spring GPA, multiple linear regression was used where the independent variable was a dichotomous variable indicating whether the student was receiving services from College Possible or not. The covariates in the model included indicator variables for Race/ethnicity, Gender, Pell eligibility, and First Generation status, as well as continuous variables for Age and High School GPA. In addition, a separate exploratory model which

⁴This use of "persistence" in this study differs from how the term is used in other contexts. For example, the National Student Clearinghouse uses "persistence" to indicate students who return to college at any institution for their second year of college and "retention" to indicate students who return to the same institution for their second year of college.

included an indicator variable for whether the student participated in other college success programs offered through their college was included to determine whether this explained further variation in student impact.

To analyze the effect of College Possible on the students' cumulative credits earned by spring we first standardized the credits across the six colleges. Since each college differed in terms of the number of credits required to earn their degree we created a variable that expressed the number of credits completed by spring as a percent of the credits they needed to graduate. Then we analyzed this variable using the same multiple linear regression models as described above in the students' cumulative spring GPA. As a sensitivity check for the transformed cumulative credits variable created, we also reran the same models except this time treated the dependent cumulative credits variable as a binomial model where a success was defined as the number of credits completed and a failure as the number of credits that student still needed to complete to graduate. To keep the resulting probabilities between 0 and 1, students who surpassed the number of cumulative credits required to graduate by spring 2017 were assigned the minimum number of credits needed to graduate from his/her respective college.

To analyze the effect of College Possible on student retention into the next academic year, logistic regression was used because the dependent variable is a dichotomous indicator variable in which linear models are inappropriate and generate biased estimates. The independent variable and covariates were the same as used in the cumulative spring GPA model. Similarly, to analyze the effect of College on student graduation, logistic regression was used because the dependent variable is also a dichotomous variable. Again, the independent variable and covariates were the same as used in the cumulative spring GPA model.

The primary data source for the implementation evaluation was records created by the coaches throughout the year as they conducted outreach and coaching with students. In addition, during the third and fourth years of the study CAREI conducted focus groups with the coaches and College Possible administered an online student survey. In the fourth year, data on the coaches' use of quality coaching practices was provided through an observation checklist completed by College Possible staff who supervise the coaches. Descriptive statistics were used to analyze the implementation data, with the exception of the focus group data which was analyzed through a process of content analysis.

Research Questions

The evaluation was designed to answer key questions about the program, based on the program's theory of action and logic model.

1. Impact

a. Confirmatory

The confirmatory questions for the impact evaluation were:

- What is the difference in rates of college persistence between program participants and non-participants?
- What is the difference in rates of college graduation between program participants and non-participants?

b. Exploratory

The exploratory questions for the impact evaluation examined the impact of participation in College Possible's college program across specific subgroups. The exploratory questions for the impact evaluation were:

- What differences exist in rates of college persistence among specific ethnic groups (e.g., Hmong, African American, African Immigrant, Latino, Multiracial/Other, White)?
- What differences exist in college graduation rates among specific ethnic groups (e.g., Hmong, African American, African Immigrant, Latino, Multiracial/Other, White)?

2. Implementation

The implementation evaluation addressed two sets of exploratory questions. First, it examined the program's fidelity of implementation, specifically:

- How many contacts occur between students and coaches, what is the duration of that contact, and what number and percentage of the contacts are two-way?
- What number and percentage of contacts are initiated by students, what is the duration of those contacts, and what number and percentage of the contacts are two-way?
- Which curriculum topics are addressed during the contact between coaches and students?
- To what extent do the interactions between coaches and students include the characteristics of quality coaching practices identified by College Possible for the college program?
- How well does the training and ongoing supervision of the coaches support the coaches to provide quality services?

The second set of implementation questions explored the relationship between program characteristics and student outcomes.

- To what extent does the intensity and content of the coaching impact college persistence and graduation?
- To what extent does the percent and number of coach-student contacts that are initiated by the student, rather than the coach, impact college persistence and graduation?
- To what extent does the program's impact on persistence and graduation differ between these two groups of students: a) students who only had *in-person* communication with their coach and students who had a mix of *in-person* and *tech-based* communication with their coach, b) students who only had *tech-based* communication with their coach?

Findings

Results of the impact evaluation indicate that for the 2013 cohort College Possible students graduated at a higher rate than students in the comparison group after 4 years of college. In contrast, the results indicate that College Possible students and students in the comparison group had no difference in average cumulative GPA or credits earned at the end of 4 years of college. The discrepant results between graduation rates and average GPAs may be due to the fact that students do not need to reach a particular GPA threshold to graduate. However, because students do need to reach a particular credit threshold to graduate the discrepant results between graduation rates and cumulative credits earned is less easily understood and therefore an area for future research. If there was no statistically significant

difference between College Possible students and comparison students on the number of cumulative credits earned, then why did the two groups of students not graduate at similar rates? One explanation is that students in the College Possible group were more likely to take the credits needed to graduate with a particular degree than students in the comparison group, suggesting students in the comparison group took more credits unrelated to the degree they were seeking. In other words, students in the comparison group had the same number of credits earned as College Possible students, but the comparison students were not yet ready to graduate because more of their credits were unrelated to the degree they were seeking. Future studies should examine credits earned in more detail to see if College Possible students are more likely than comparison students to take credits related to the degree they are seeking.

The results of the impact analyses for the combined cohorts show no statistically significant effect of College Possible on any outcome variable. The purpose of combining cohorts was to increase statistical power, with the idea that previous non-significant findings from the 2013 cohort were the result of the previous studies being statistically under-powered. However, because we did not find evidence of an impact of College Possible on the study outcomes even with the increase in statistical power, this suggests there may be other explanations for the lack of a statistically significant effects. Because the analyses of data from the combined cohorts were limited to outcomes in students' first and second years of college, future research should examine the effects of College Possible on students' outcomes beyond the second year of college with a larger sample size.

In contrast to the impact evaluation, the implementation evaluation focused on one cohort of students, those who graduated from high school in 2013. The purpose of the implementation evaluation was to measure the program's fidelity of implementation, identify areas where the program could be strengthened, and measure the intensity and content of the coaching that students in the 2013 cohort received during each year of the study.

Results of the Year 4 implementation evaluation indicated that, on average, the students and coaches had 14.4 contacts during the year and 50% of those contacts were two-way contacts. A contact is classified as two-way when the student responds to an outreach attempt by the coach or a coach responds to a contact that the student initiated. The evaluation data indicated that contacts were much more likely to be two-way when the student initiated the contact (97%) than when the coach initiated the contact (45%). However, only 10% of the contacts that occurred during the year were initiated by students.

The total duration of contact between students and coaches during Year 4 ranged from 0 to 450 minutes, with 18% of the students having 0 minutes of contact (no contact) with their coach. For the subset of students who had at least a minute of contact with their coach during the year, the median total duration of contact during the year was 60 minutes, or one hour. During Year 4, the two most frequent topics the coaches addressed in their outreach with students were financial aid and registration.

The level of the fidelity of program implementation cannot be determined directly from the implementation evaluation data because the program model emphasizes that coaches should address students' individual needs, which can vary widely based on factors such as where students are in their academic journey, whether they are currently enrolled in courses, and the kind of institution they are

attending. The program model does not specify an overall minimum number of coach-student contacts that should occur during the year for each student, the total duration of these contacts, or the percentage of contacts that should be two-way, although College Possible does place a higher value on a two-way contact than a one-way contact because a two-way contact allows the coach an opportunity to coach their students. As the program model has evolved over the course of the four-year evaluation, the program has identified other measures of the coaching that occurs in order to monitor the program's fidelity of implementation internally. These other measures will be useful in future research on the implementation and impact of the College Possible college program.

Introduction

This report summarizes the final impact and implementation evaluation results from a longitudinal evaluation of College Possible's programming for college students. The Greater Twin Cities United Way contracted with the University of Minnesota's Center for Applied Research and Educational Improvement (CAREI) to design and conduct the SIF evaluation of College Possible's college program. The impact evaluation was designed to provide a moderate level of evidence⁵ through the use of a quasi-experimental design to examine the program's impact on the intermediate and long-term outcomes of college persistence⁶ and graduation. The intervention group consists of the College Possible classes of 2013, 2014, and 2015 who graduated from a public high school in Minneapolis and Saint Paul and enrolled in one of six local colleges in fall 2013, fall 2014, or fall 2015, respectively. For each cohort, propensity score matching was used to create a comparison group of similar students who graduated from the same high schools and enrolled in the same six colleges but did not participate in College Possible during high school or college. The results presented in this report reflect the changes to the study design that were described in the SEP Addendum (May 2016).

College Possible Program Description⁷

College Possible is a college readiness, access, and success organization that supports and coaches low-income students through ACT and SAT test preparation, college application assistance, financial aid consulting, guidance during the transition from high school to college, and ongoing support towards degree completion. Founded in 2000 as "Admission Possible," College Possible is a national nonprofit organization that is determined to close the degree divide between low-income students and their wealthier peers by helping low-income students get to and through college. Trained AmeriCorps coaches work with participating students in their junior and senior years of high school and in college to help them address the social, academic, and financial barriers to college access and success. Over the past 17 years since College Possible was established, College Possible coaches have helped 12,427 students (99%) earn admission to college. Compared to their low-income peers, College Possible students are four times more likely to enroll at a bachelor's degree-granting institution and graduate within six years.

College Possible students. Students who are interested in the program apply in their sophomore year of high school and participate in an in-person interview. Together, these allow the reviewers and selection teams to assess the student's family background, academic preparation, and college aspirations. To be eligible, students must come from a low-income family, have a GPA of 2.0 or higher, and express interest in attending a 4-year college. These three requirements ensure that College Possible continues to select students from low-income backgrounds who are preparing and academically progressing towards college.

College Possible coaches. College Possible's near-peer coaching model is powered by AmeriCorps service members who are all recent 4-year college graduates. To ensure coaches are prepared and equipped to help support students, all coaches participate in a three-week orientation at the start of their term of service and participate in weekly coaching and curriculum training sessions throughout

⁵ As defined in the *Social Innovation Fund: Content Requirements for Subgrantee Evaluation Plans* (May, 2013).

⁶ The use of "persistence" in this study differs from how the term is used in other contexts. For example, the National Student Clearinghouse uses "persistence" to indicate students who return to college at any institution for their second year of college and "retention" to indicate students who return to the same institution for their second year.

⁷ The program description was written and provided for inclusion in this report by College Possible program staff.

their service year. Each training session and activity includes a detailed training plan developed by College Possible's national program management team. A standardized training plan ensures that each College Possible location provides the same level of training to their coaches. To ensure program fidelity, coaches are required to sign-in to each training session. This allows program managers and supervisors to ensure that each coach receives the training content and skill-building activities.

As part of their training, coaches learn how to implement and utilize College Possible's structured curriculum to guide their coaching sessions and meetings with students. The college coaching curriculum handbook consists of 16 modules that cover academic, social, and financial topics. The module topics were created and developed over a number of years and are based on the identified barriers for low-income students as they make their way through college. The modules include things that all students must do to persist (i.e., clear account balances, complete exit loan counseling, choose a major), to things that enhance a student's engagement in their college experience, thereby improving retention and graduation rates (i.e., study abroad, connect on campus, build time management skills). This mix of topics allows college coaches to offer value to all students at every point in their academic journey.

The College Possible model and intervention. As seen in Figure 2, College Possible high school programming and coaching begins in the junior year of high school. Students meet with their coach in small groups of 15-20 students for two hours after school, every other day. Once students are in the College Possible program, they can continue to receive support wherever they go to college and until they earn a Bachelor's degree. Students receive College Possible college programming and coaching through one of two coaching models. First, *Campus-based coaching* where coaches are located on a college campus and use a variety of communication methods to successfully connect with their students, especially in-person meetings. Or second, *Tech-connected coaching* where coaches are located off campus, support students across multiple campuses and states, and use a variety of communication methods to successfully connect with their students (but mostly depend on technology to reach their students).

Over the four years of the evaluation, some of the colleges altered between the coaching models that were employed each year, which is based on partnership agreements between the college and College Possible (see Table 1). However, each year at least three of the six colleges received the campus-based coaching model. Two of the six colleges had the campus-based coaching model during the four years of the study.

Table 1

Coaching Model Used at Each College

College Partner	Coaching Model Employed in Year 1	Coaching Model Employed in Year 2	Coaching Model Employed in Year 3	Coaching Model Employed in Year 4
College A	Campus-based	Campus-based	Campus-based	Campus-based and tech-connected
College B	Tech-connected plus coach on campus 1 day/week	Tech-connected	Tech-connected	Tech-connected with varied intermittent in-person support
College C	Campus-based	Campus-based	Tech-connected	Tech-connected with varied intermittent in-person support
College D	Tech-connected	Campus-based	Campus-based	Campus-based
College E	Tech-connected	Tech-connected	Tech-connected	Tech-connected with varied intermittent in-person support
College F	Campus-based	Campus-based	Campus-based	Campus-based

Regardless of the coaching model (on or off campus), the college program and coaching is individualized and based on the student's needs. To help coaches determine when they should introduce certain topics to each student, College Possible's national program management team builds and distributes an annual curriculum calendar with guidance on how and when to use the calendar to plan student outreach and engagement. Over the course of the SIF subgrant and evaluation (2013-2017), College Possible used internal data and results, as well as interim results from this study, to help inform programmatic improvements to the curriculum calendar and guidance. These framework documents were revised and refined, and enhanced and improved, over three iterations, all to help ensure students received appropriately timed outreach and coaching on relevant topics. These iterations are shown in Figure 1 and detailed below:

First iteration of college program (fall 2013 to spring 2014). During the first semester of the study (fall 2013) the college program utilized a Module Calendar. Coaches were trained to use the calendar to determine the weekly module topic. Then coaches would discuss the weekly topic with any student who had outreach and coaching during the week. The underlying goal of the module calendar and weekly topics were to ensure that all students had at least one successful coaching conversation during the semester. However, according to the intervention and dosage data, some students did not have contact during the semester. According to coach feedback, many coaches felt too overwhelmed with their large portfolios of students and how to ensure that all students received coaching.

Second iteration of college program (spring 2014 to spring 2016). After Fall 2013, College Possible reworked and enhanced the framework documents to ensure students didn't slip through the cracks and to help coaches target and prioritize students with the highest need. Starting in spring 2014, the Module Calendar and guidance was reworked into a Target Guidance. The updated guidance included the existing module calendar as well as other key indicators to help coaches determine which students needed coaching for each week (i.e., students who had not been contacted, students who had not registered yet, students who unenrolled). Coaches were trained to assess each student's progress to determine whether the student needed outreach that week based on the weekly topics or indicators.

Once coaches identified which students needed the weekly coaching topics (again, based on the student's needs) or showed other indicators requiring the coach to follow up, coaches would then select a Target List of 30 students to focus on during the week. (In addition to the weekly targeted students, coaches continue to reach out to other students and respond to student questions and concerns that fall outside of the specific, scheduled coaching objectives or pull out the information from various modules that is relevant to an individual student at a point in time.) As a fidelity measure, weekly reports were produced to monitor coach effectiveness at successfully reaching and coaching at least 20 of their 30 target students. These weekly goals were designed to help ensure that all students were successfully connecting with their coach during the semester. However, based on several surveys and focus groups with students, we learned that Targeted student-coach interactions felt transactional because students were being asked the same questions year-over-year or conversations focused on task completion. While Targeted Coaching helped increase the quantity of coaching, the solution did not address quality. The next iteration of the program would need to include more relationship building and intentional program delivery based on what the student needs and using student data (interaction history, enrollment patterns, academic standing, etc.) to inform future conversations.

Other programmatic changes over this two-year period included the introduction of a new database in fall 2014, which allowed coaches to track more qualitative data about the student-coach interaction, show engagement trends overtime, and track and assess which communication methods were most effective when conducting outreach to students. Over the course of these two years, college portfolio sizes gradually began to decrease to 100-150 students for most coaches. There were some staff transitions at the end of 2015-2016, where two of the three coach supervisors were promoted to roles in College Possible's National office.

Third iteration of college program (fall 2016 to current). After spring 2016, College Possible used the summer months to reflect on the prior three years of learnings and results to help inform the third iteration of the college programming approach. Starting in fall 2016, the updated coaching approach was implemented and renamed Campaign Coaching, which included expanding the weekly focus to a quarterly focus, increased emphasis on timely and successful contact based on where the student was at in their academic journey, and prioritized communication methods to facilitate effective coaching conversations and relationship building. As a result, the former Target Guidance was adapted into a Priority Guidance framework. The new guidance accounted for the student's current enrollment information (enrolled, transferring, or unenrolled) and mapped out the curriculum topics that coaches should cover during the quarterly campaign based on the student's enrollment information. To kick off a new campaign, coaches were trained to use mass outreach communication methods (i.e., text, email) to schedule check-ins and coaching sessions with students, and then continue to use voice-to-voice communication methods (i.e., In-person, Phone, Skype) during the middle and end of the campaigns to continue scheduling check-ins and have coaching sessions. Coaches were also trained to prepare for the quarterly coaching session by assessing the student's needs, determining whether students were

enrolled or unenrolled, and selecting quarterly coaching topics that were relevant to the student's needs. As a fidelity measure, program leaders continued to generate weekly reports to monitor coach effectiveness at successfully reaching and coaching their enrolled and unenrolled students during the appropriate quarterly campaign(s) and using voice-to-voice communication methods. Programmatic goals varied based on the timing of the quarterly campaign and whether students were enrolled or unenrolled: the goal for enrolled students was to have successful (two-way) campaign coaching with all enrolled students during each of the three campaigns; the goal for unenrolled students was to have successful (two-way) campaign coaching with all unenrolled students at least 1-2 times a year based on their re-enrollment plans.

Other programmatic changes during the third iteration (fall 2016, spring 2017) included staff turnover of the college program leaders in the Minnesota office, which included hiring and training a new program director and new program manager. College Coaches who were stationed off-campus as a Tech-Connected coach were able to plan visits to local college campuses to meet their students in person (this was occurring more informally in years prior).



Evolution of Coaching Approach

College Program, 2013-2017

<p>In Fall 2013, Coaches were trained to:</p>	<p>In Spring 2014, Management reworked and enhanced the outreach plan to ensure students did not slip through the cracks again, and to ensure coaches were trained how to prioritize their large portfolios. Coaches were trained to:</p>	<p>In Fall 2016, Management enhanced the outreach plan again by expanding the weekly focus to a quarterly focus, and increased focus on successful contact based on where the student was at in their academic journey. Coaches were trained to:</p>
<p>1) follow a module calendar</p>	<p>1) follow the Target Guidance (<i>included the module calendar as well as other indicators to help coaches determine which students needed coaching that week, like students who hadn't been contacted, or students who hadn't registered yet, or students who unenrolled</i>) to identify all the students in their portfolio that would need that week's coaching topics (<i>based on the student's needs</i>) or showed other indicators requiring the coach to follow up, then of those students a coach selects a Target List of 30 student to focus on during the week while still supporting other non-target students, and weekly reports were produced to monitor coaches' effectiveness at successfully reaching at least 20 of the 30 target students</p>	<p>1) follow the Priority Guidance to identify all the (enrolled, transferring, and unenrolled) students in their portfolio that met the campaign coaching criteria then a coach uses mass outreach at the start of the campaign to schedule check-ins and coaching sessions, and continue to use more personalized outreach during the middle and end of the campaigns to continue scheduling check-ins and coaching sessions and weekly reports were produced to monitor coaches' effectiveness at successfully reaching their (enrolled and unenrolled) students, using voice-to-voice methods</p>
<p>2) discuss the weekly module with any student they contacted that week</p>	<p>2) discuss the weekly modules and other issues relating to the indicators (<i>once the new database was implemented in Fall 2014, this combined list of modules, barriers, and indicators was tracked in communication records as "Topics"</i>)</p>	<p>2) discuss the seasonal campaign topics, based on where the student was at in their academic journey (enrolled, transferring, unenrolled) and the student's needs, but with an emphasis on voice-to-voice communication methods</p>
<p>3) successfully contact (two-way) all of their students at least once during the semester</p>	<p>3) successfully contact (two-way) all of their students at least once during the semester</p>	<p>3) successful (two-way) campaign coaching with all enrolled students during each of the three campaigns, and successful campaign coaching with all unenrolled students based on their unenrolled classification (or 1-2 times a year)</p>
<p>However, coaches had large portfolios and felt overwhelmed, plus students slipped through the cracks</p>	<p>However, some students reported that student-coach interactions felt transactional and didn't always account for where the student was at in college, their individual needs, or unique situation. Targeted coaching increased the quantity of coaching but lacked quality.</p>	

Figure 1. Evolution of College Possible's College Coaching Approach (fall 2013 through spring 2017).

College Possible Program Model

HIGH SCHOOL

Sophomore Year

- + Students apply to College Possible

Junior Year

- + Selected cohorts of 40 students begin the College Possible program
- + Students complete GLOW pre-assessment
- + Students participate in after-school coaching sessions on
 - + ACT/SAT Test preparation
 - + Goal setting
 - + Finding a best fit college
 - + Financial Literacy Coaching
 - + College Costs
 - + Campus Visits
- + Students complete the GLOW post-assessment

Senior Year

- + Junior students transition to their senior year of high school and begin College Possible's senior programming
- + Students complete GLOW pre-assessment
- + Students participate in after-school coaching sessions:
 - + College application assistance
 - + Financial aid coaching
 - + Scholarship application assistance
 - + Professional communication and essay skills
 - + Academic expectations and responsibilities
 - + Social support system
 - + Developing a personal budget for college
 - + Preparation for transition to college life
- + Students complete the GLOW post-assessment



SUMMER BRIDGE

- + College Possible senior students graduate high school
- + Students participate in summer programming:
 - + In-person Summer Bridge coaching to complete a 10-item pre-enrollment checklist
 - + Coaching through mass texting platform to keep students engaged and on track to complete their check-list
- + Students participate in semi-structured interviews



COLLEGE

- + College Possible high school graduates begin college
- + Students receive ongoing, individualized support:
 - + Connecting to campus resources
 - + Financial aid coaching
 - + Developing study skills and self-advocacy
- + Students complete the feedback survey



Figure 2. College Possible Program Model.

Focus of the Evaluation

This longitudinal evaluation focused on College Possible's college program, and specifically, the college coaching program being implemented at six post-secondary institutions in the Minneapolis-Saint Paul metropolitan area from fall semester 2013 through spring semester 2017.

Research Questions

The evaluation was designed to answer key questions about the program, based on the program's theory of action and logic model.

1. Impact

a. Confirmatory

The confirmatory questions for the impact evaluation were:

- What is the difference in rates of college persistence between program participants and non-participants?
- What is the difference in rates of college graduation between program participants and non-participants?

b. Exploratory

The exploratory questions for the impact evaluation examined the impact of participation in College Possible's college program across specific subgroups. The exploratory questions for the impact evaluation were:

- What differences exist in rates of college persistence among specific ethnic groups (e.g., Hmong, African American, African Immigrant, Latino, Multiracial/Other, White)?
- What differences exist in college graduation rates among specific ethnic groups (e.g., Hmong, African American, African Immigrant, Latino, Multiracial/Other, White)?

2. Implementation

The implementation evaluation addressed two sets of exploratory questions. First, it examined the program's fidelity of implementation, specifically:

- How many contacts occur between students and coaches, what is the duration of that contact, and what number and percentage of the contacts are two-way?
- What number and percentage of contacts are initiated by students, what is the duration of those contacts, and what number and percentage of the contacts are two-way?
- Which curriculum topics are addressed during the contact between coaches and students?
- To what extent do the interactions between coaches and students include the characteristics of quality coaching practices identified by College Possible for the college program?
- How well does the training and ongoing supervision of the coaches support the coaches to provide quality services?

The second set of implementation questions explored the relationship between program characteristics and student outcomes.

- To what extent does the intensity and content of the coaching impact college persistence and graduation?
- To what extent does the percent and number of coach-student contacts that are initiated by the student, rather than the coach, impact college persistence and graduation?
- To what extent does the program's impact on persistence and graduation differ between these two groups of students: a) students who only had *in-person* communication with their coach and students who had a mix of *in-person* and *tech-based* communication with their coach, b) students who only had *tech-based* communication with their coach?

Methods

Impact Evaluation Design and Measures

A quasi-experimental design was used to explore the impact of the College Possible college program on college persistence and graduation. In summer 2014, each participating college provided de-identified data for the 2013 cohort of students and the following variables were included:

- Race/Ethnicity
- Gender
- Age
- High school GPA
- ACT composite score
- First generation college student status
- Socioeconomic status (as indicated by eligibility for the Pell Grant program)
- Rigor of high school coursework (as measured by each institution)
- Enrollment in other college success programs

Propensity score matching was used to create a comparison group of students within each of the six colleges who have not participated in College Possible. Due to small sample sizes within colleges for the 2013 cohort of students, none of the College Possible students were discarded during the propensity score matching process and matches were obtained using the Nearest Neighbor without Replacement method. (See Appendix A for information on the baseline equivalency, standardized mean differences, and percentage of students matched for this cohort.)

In the summer 2017, the colleges provided de-identified data on the nine variables listed above for the 2014 and 2015 cohorts of students so that CAREI could create a matched comparison group for each of the new cohorts. Propensity score matching was performed on each cohort of students separately and within each college. However, because the purpose behind adding new cohorts to the impact evaluation was to increase power while minimizing noise, the priority for this second wave of propensity score matching was to include only the best matches possible. Therefore, for the 2014 and 2015 cohorts of students the Nearest Neighbor with Replacement method was used and only College Possible students who could be matched to comparison students within a propensity score radius of 0.05 were retained

(e.g., Dehijia & Wahba, 2002). (See Appendix A for information on the baseline equivalency, standardized mean differences, and percentage of students matched for the 2014 and 2015 cohorts.)

To ensure the College Possible group and the comparison group were statistically similar on all variables at baseline for all three cohorts, models were fitted where the College Possible variable was treated as the outcome variable and the variables included in the impact analyses were treated as predictors. Models were fitted to the 2013 cohort and the combined cohorts separately. In all models, no variables were statistically significant predictors of being in College Possible, indicating baseline equivalence (See Appendix A).

In late summer 2017 the six colleges also provided de-identified data for the three persistence variables—college GPA, credits accumulated, and whether the student was retained into the next academic year—and the final impact variable of college graduation (for the 2013 cohort only). In this study, retention into the next academic year indicates that a student is eligible to register for classes for the following semester and has registered for classes the following semester by the time the colleges pull the data in June and send it to College Possible for this study.

Participants

When the study began in fall 2013 there were 160 students in the intervention group and 160 students in the comparison group (i.e., the 2013 cohort). An additional 267 students in the 2014 cohort (163 in the intervention group and 104 in the comparison group) along with 294 students from the 2015 cohort (186 in the intervention group and 108 in the comparison group) were added to the study in the summer of 2017. For all cohorts, the intervention group is composed of Minneapolis and Saint Paul, Minnesota high school graduates who participated in College Possible beginning with their junior year in high school and enrolled fall 2013, 2014, or 2015 in one of six local colleges that are participating in the study. The six colleges include four four-year institutions – two public and two private – and two public two-year institutions. The colleges were chosen for this study because College Possible has established a formal partnership with each institution and the colleges enroll significant numbers of graduates from Minneapolis and Saint Paul high schools that offer College Possible’s high school program.

The comparison group is made up of students from these colleges who did not participate in College Possible during high school and also are not participating in the program during college. The comparison students are also graduates of Minneapolis and Saint Paul high schools who enrolled in the same six colleges in fall 2013, 2014 or 2015. The students in the comparison group were selected through propensity score matching from among the larger group of Minneapolis and Saint Paul graduates who enrolled in one of the six colleges.

Implementation Evaluation Data Collection Activities

Data from College Possible coaching records. College Possible staff provided data for the implementation evaluation from the communication records compiled by each coach throughout the academic year. Each day the coaches recorded the following information about their outreach efforts with each of the students with whom they have attempted to communicate, or their response to students who have initiated contact with them:

Communication methods. This field lists the communication method(s) the coach used to reach out to the student or to respond to a student-initiated contact. Coaches reach out to students through

two types of communication methods: *in-person communication methods* (meeting with the student in-person) and *tech-based communication methods*, which include text messages, email, Facebook, or telephone calls. It is important to note that these two types of communication methods are distinct from the two coaching models described earlier, and coaches working in either coaching model (campus-based coaching or tech-connected coaching) may use either *in-person* or *tech-based* communication methods with their students. Although the coaches who work in the tech-connected coaching model are less likely to use in-person communication because they do not have an office on the college campus of each student in their portfolio, the tech-connected coaches in this study have sometimes traveled to campus to meet in-person with a student, because all of the tech-connected coaches and all of the colleges in this study are located in the Minneapolis-Saint Paul metropolitan area.

In the last year of the study, College Possible staff indicated that the evaluation results would be more useful to their organization if CAREI would revise the way it categorized the different communication methods the coaches use to reach out to students. College Possible had already begun to use the new categories in other studies and the staff and coaches had found it useful. CAREI agreed to use the new categories for its analyses in the implementation evaluation. The new categories for communication methods are as follows: a) “voice-to-voice” communication, which includes contact between coaches and students via phone or an in-person meeting, and b) communication between coaches and students that is “not voice-to-voice” and includes the use of online tools such as email, text, or Facebook.

Communication outcome. This field indicates whether the coach was successful in eliciting a response from the student that week, or that a coach successfully replied to a contact initiated by a student. A “successful”, or 2-way contact, means the two parties connected. An “attempted”, or 1-way contact, means that the coach tried to reach the student, but the student did not respond to the coach in any way, or that the coach was not able to respond to a student-initiated contact.

Duration (in minutes). This field displays the total number of minutes during the week when the coach had two-way contact(s) with a student. A one-way, or attempted, contact would have a 0 listed in this field. When a two-way contact involves tech-based communication methods, such as email or text messages, the coaches are advised to calculate the duration using 5 minute increments, unless the actual time is more precise. For example, a texting thread may span over four hours, but the coach and student only exchanged texts for a few minutes in the beginning and a couple minutes at the end, which means the total duration would be 5 minutes. As explained by College Possible staff,

We used 5 minutes as a proxy because it takes time to write, prepare, edit and review the written message. If a student responds to an email, the duration is bumped to 10 minutes (if two hours pass between the initial email and the response email, coaches do not add 2 hours to the duration... this is just the wait time and we don’t count it). If they text later in the week for two minutes, the weekly record duration gets bumped to 12 minutes.

When a coach uses a text message to reach out to a student, then the coach determines the duration of the contact in this way, as described by College Possible staff,

Each texting thread is treated as one contact between the coach and the student. If after 24 hours the coach does not hear back from the student, the contact is considered to be a one-way contact and the record is closed for that contact. If the texting between the coach and the student continues after 24 hours, the thread is the

same and still counts as one texting conversation (though the coaches are instructed to add up the actual duration of the texting exchange, using 5 minute increments, rather than default to something extreme such as 1,440 minutes or 24 hours.

Topic(s). This field lists the curriculum topic(s) addressed during a contact. The available topics are the same, regardless of whether a coach is working with students in their first year of college or their final year of college. During the 2016-2017 academic year, College Possible specified which curriculum topics coaches should address in their outreach to students during each of the four college program campaigns. For example, the fall campaign included curriculum topics such as choosing a major, account balance, and financial aid. However, during a campaign period, the coaches could also use any of the other curriculum topics they felt would be useful based on individual student needs.

Focus groups with college coaches. On June 6, 2017, CAREI conducted two 90-minute focus groups with 25 of the 37 coaches who had worked with students in the intervention group during the 2016-2017 academic year. Seven of the coaches worked in the campus-based coaching model (5 males, 2 females), and the other 18 coaches worked in the tech-connected coaching model (11 males, 7 females). CAREI developed the focus group questions (See Appendix B for a list of the questions) in consultation with College Possible staff who also recruited coaches to participate voluntarily in the focus groups. The focus groups were conducted in the College Possible offices in Saint Paul, MN.

Each focus group was audio-recorded and then transcribed. A content analysis of each transcript identified themes in the coaches' perspectives on the adequacy of the training and on-going supervision the coaches had received from College Possible staff. In addition to identifying overall themes in the data, we compared the results between the two focus groups to identify any differences in the perspectives of coaches who had worked in the campus-based coaching model and coaches who had worked in the tech-connected coaching model.

Coach observation checklist. A new data source for the implementation evaluation in Year 4 was a coach observation checklist. As part of College Possible's ongoing supervision and training for college coaches, the supervisors of the coaches conduct observations of the coaches' interactions with students. The observation is guided by the Coaching Observation Rubric developed by College Possible. The tool contains descriptions of 12 quality coaching practices in four areas: rapport and relationship building, effectively gathering information, identifying opportunities and challenges, and creating an action plan. The coach supervisors assign one of four ratings to each practice: not meeting, approaching, meeting, or exemplary. In addition, the supervisors provide written documentation to support the ratings and suggestions for how the coaches can continue to build their skills. For the purpose of this study, we assigned a number to each rating, as follows: 1) not meeting, 2) approaching, 3) meeting, and 4) exceeding and then calculated the mean and median for each quality practice.

Impact Evaluation Results

The purpose of the impact evaluation was to address the following questions:

1. What is the difference in rates of college persistence between program participants and non-participants? (confirmatory)
2. What differences exist in rates of college persistence among specific ethnic groups? (exploratory)

3. What is the difference in rates of college graduation between program participants and non-participants? (confirmatory)
4. What is the difference in rates of college graduation among specific ethnic groups? (exploratory)

Data Analysis

College persistence was measured by three variables: student's cumulative GPA, student's cumulative credits earned, and college's retaining students into the next academic year⁸ for enrollment in classes during the following semester at their college. A fourth persistence variable, student's remedial course taking, was not included in the Year 4 analyses for the 2013 cohort because students generally register for remedial courses only during their first year of college.

For the analyses with all three cohorts combined, college persistence was measured at the end of students' first and second years of college: cumulative GPA, cumulative credits earned, and retention into the next academic year. Outcomes for the combined cohorts' third and fourth years of college were not considered for the analyses because only the 2013 cohort has had a chance to complete their third and fourth years of college at this time. As such, the analyses of the three cohorts combined are restricted to outcomes in the first and second years of college.

When running the impact analyses, the following covariates were excluded: rigor of high school coursework, math placement code, reading placement code, and ACT composite scores. These exclusions were necessary because only students at the two-year colleges had math and reading placement codes, and very few students at the two-year colleges had ACT composite scores because the ACT is not required for admission. In addition, rigor of high school coursework was excluded because it was not measured consistently across the six colleges. Appendix C provides further information on the results of the statistical analyses for the impact evaluation for the fourth year of college for students in the 2013 cohort. Appendix D provides further information on the results of the statistical analyses for the impact evaluation of all three cohorts combined.

For each of the impact variables, we assessed the sensitivity of our propensity scores by performing a weighted regression using the propensity score weights as covariates. For each of the impact variables this did not change whether College Possible had an effect on the outcome variable. Thus, for parsimony, the final models reported do not include weights as covariates. (See Appendix A.)

For most of the impact analyses, including analyses for the 2013 cohort alone and analyses with the three combined cohorts, a significant number of students were missing data. In all cases, we performed sensitivity analyses to ensure the data were not missing for systematic reasons. In all cases, the missing data patterns were unrelated to being in the College Possible group or the comparison group and to all impact variables. College was the only variable to which missing data patterns were related. In other

⁸ The current data set does not distinguish between students who may have stopped out/dropped out of college and those who may have transferred to another college. The current data set only includes retention at the college in which the student initially enrolled and attended in the fall of their first year of college. In addition, because retention into the next academic year indicates that a student is both eligible to enroll in classes for the following year at their initial college *and* has registered for classes for the following semester at that same college, the college retention rate into the next academic year does not include students who were eligible to register for classes but had not done so by June 2017, when the colleges pulled the impact data for the fourth year of the study.

words, data was systematically missing by college, such that some colleges provided complete or nearly complete data and other colleges provided files with significant amounts of missing data. For this reason, we included college in the models as a dummy variable to control this effect. Although the SEP specified that we would use multiple imputation to address any significant amounts of missing data present in our impact analyses, we employed listwise deletion instead because we did not have access to data on auxiliary variables that were related to the dependent variables and to missingness. Due to the lack of auxiliary variables related to the dependent variables and to missingness, multiple imputation would not have added any additional information to the impact analysis. In this type of situation, assuming the data are missing at random, listwise deletion will provide unbiased estimates, as well as offer the most parsimonious approach. (See Appendix E for further information on the sensitivity analysis.)

To analyze the effect of College Possible on the students' cumulative spring 2017 GPA, multiple linear regression was used where the independent variable was a dichotomous variable indicating whether the student was receiving services from College Possible or not. The covariates in the model included indicator variables for Race/ethnicity, Gender, Pell eligibility, and First Generation status, as well as continuous variables for Age and High School GPA, and a dummy-coded variable for college, where College A was the reference group. In addition, a separate exploratory model which included an indicator variable for whether the student participated in other college success programs offered through their college was included to determine whether this explained further variation in student impact.

The effect of College Possible on students' cumulative credits earned by spring 2017 were analyzed by standardizing credits across the six colleges. Since each college differed in terms of the number of credits required to earn a degree, we created a variable that expressed the number of credits completed by spring 2017 as a percent of the credits they needed to graduate. Then we analyzed this variable using the same multiple linear regression models as described above for analysis of the students' cumulative GPA⁹.

Logistic regression was used to analyze the effect of College Possible on student retention into the next academic year, because the dependent variable is a dichotomous indicator variable in which linear models are inappropriate and generate biased estimates. The independent variable and covariates were the same as used in the cumulative spring 2017 GPA model. Similarly, to analyze the effect of College Possible on student graduation, logistic regression was used because the dependent variable of graduation is also a dichotomous variable. Again, the independent variable and covariates were the same as used in the cumulative GPA model.

For the analyses with all cohorts combined, the same models as those described above were fitted to the data. An additional dummy variable for cohort was included, with the 2013 cohort serving as the reference group. For the analyses with all cohorts combined, models were fitted separately to the impact data for the first year of college and the impact data for the second year of college.

⁹ As a sensitivity check for the transformed cumulative credits variable, we ran the same models but we treated the dependent cumulative credits variable as a binomial variable where a success was defined as the number of credits completed and a failure as the number of credits that a student still needed to graduate. To keep the resulting probabilities between 0 and 1, students who surpassed the number of cumulative credits required to graduate by spring 2017 were assigned the minimum number of credits needed to graduate from his/her respective college.

Results for the 2013 Cohort's Fourth Year of College

The impact variables across the colleges for the College Possible group and the comparison group are displayed in Table 2. As shown, the average cumulative GPA in spring 2017 for students in College Possible was 2.87 and the average for students in the comparison group was 3.00. Regression analysis indicated there was not a statistically significant difference between College Possible students and comparison students even when we added a covariate for student participation in other college support programs during year four to the model (Appendix C, Tables 1 and 2).

In contrast, Table 2 shows that at the end of spring 2017, the group of College Possible students had on average completed a slightly greater percentage of the credits needed to graduate from their respective colleges (87%) than the group of comparison students (84%). However, regression analysis indicated that this difference was not statistically significant. In addition, adding a covariate for student participation in other college success programs during year four did not make the difference statistically significant in either model (Appendix C, Tables 3 and 4).

Table 2 shows that the percentage of students retained in spring 2017 by their initial college into the next academic year was lower for the group of College Possible students (72.4%) than the group of comparison students (86.3%). However, logistic regression indicated that this difference was not statistically significant (Appendix C, Tables 5 and 6).

Finally, Table 2 shows that College Possible students graduated at a higher rate by the end of Year 4 of the study (46.4%) than the group of comparison students (27.2%). This result was statistically significant with and without controlling for students' enrollment in other college success programs (Appendix C, Tables 7 and 8). In the College Possible group, 15.5% of the students received a degree from a two-year college and 30.9% received a degree from a four-year college. In the comparison group, 4.9% of the students received a degree from a two-year college and 22.3% received a degree from a four-year college. These results are based on information provided to College Possible by the six colleges that participated in the study. There may be additional students in either the College Possible group or the comparison group who transferred to another college during the study and subsequently received a two-year or four-year degree by the end of Year 4 of the study, but this information was not available for this study.

Table 2

Impact Variables Spring 2017

	College Possible	Comparison
Retained end of spring 2017	(N=94) 72.4%	(N=81) 86.3%
Cumulative GPA spring 2017	(N=94)	(N=81)
--Mean	2.87	3.00
--Standard deviation	0.58	0.66
Cumulative credits earned spring 2017 ¹⁰	(N=94)	(N=81)
--Mean	87%	84%
--Standard deviation	.18	.19
Graduation spring 2017 ¹¹	(N=97) 46.4%	(N=81) 27.2%

We also explored differences in college persistence and graduation by student race/ethnicity, gender, PELL eligibility, and first generation. Across all models fitted, including the sensitivity models, there were no statistically significant effects for race/ethnicity, gender, first generation status, or PELL eligibility, indicating no differences between students in these subgroups for all outcomes, including graduation from college.

Results for the Combined Cohorts' First and Second Years of College

The results of the models fitted to the data with all three cohorts combined (2013, 2014, and 2015) showed no statistically significant effect of the College Possible college program on any of the impact variables (i.e., GPA, credits, and retention for the first and second years of college). In contrast to results of the subgroup analysis for the 2013 cohort's fourth year of college, the subgroup analysis for the combined cohorts indicated there were statistically significant differences by student subgroup in the first and second years of college.

For the impact variable of cumulative GPA, the results indicated that in the first year of college male students had a significantly lower GPA than female students, and Hispanic students had a significantly higher GPA than Asian students (Appendix D, Table 1). These effects were not found when analyzing cumulative GPAs in the second year of college (Appendix D, Table 2). When enrollment in other college success programs was included in the model, the gender effect remained, but the ethnicity effect was no longer statistically significant (Appendix D, Tables 3 and 4).

¹⁰ As expressed by the percentage of credits needed to graduate.

¹¹ These results include students who graduated at any point during the four-year study.

Regarding cumulative credits, the results indicated that in the first year of college Hispanic students earned significantly more credits than Asian students (the reference group), and in the second year of college White students earned significantly more credits than Asian students (Appendix B, Tables 5 and 6). Both of these effects were still statistically significant in the models that included students' enrollment in other college success programs (Appendix D, Tables 7 and 8).

Finally, no statistically significant effects were found for any student subgroup when considering retention from the first year to the second year of college or retention from the second year to third year of college (Appendix D, Tables 9 - 12). Appendix D contains additional information on the analyses with all cohorts combined.

At the end of the second year of college, 1 College Possible student had received a degree from a two-year college. This contrasts with the 11 students in the comparison group who received a degree from a two-year college over the same time period. Due to the small number of students who had graduated by the end of their second year of college, we did not run statistical tests to determine if this difference between the College Possible group and the comparison group was statistically significant.

Implementation Evaluation Results

The purpose of the implementation evaluation, which focused on the cohort of students who graduated from high school in 2013, was to measure the program's fidelity of implementation and identify areas where the program could be strengthened. The implementation evaluation was designed to answer the following questions:

1. How many contacts¹² occur between students and coaches, what is the duration of that contact, and what number and percentage of the contacts are two-way?
2. What number and percentage of coach-student contacts are initiated by students, what is the duration of those contacts, and what number and percentage of the contacts are two-way?
3. Which curriculum topics are addressed during the contact between coaches and students?
4. To what extent do the interactions between coaches and students include the characteristics of quality coaching practices identified by College Possible for the coaching program?
5. How well does the training and ongoing supervision of the coaches support the coaches to provide quality services?
6. To what extent does the intensity and content of the coaching impact college persistence and graduation?
7. To what extent does the percent and number of coach-student contacts that are initiated by the student, rather than the coach, impact college persistence and graduation?
8. To what extent does the program's impact on persistence and graduation differ between these two groups of students: a) students who only had *in-person* communication with their coach and students who had a mix of *in-person* and *tech-based* communication with their coach b) students who only had *tech-based* communication with their coach?

The findings for the evaluation questions are presented below.

¹² During Year 4 of the study the coaches tracked and recorded every contact with their students. This contrasts with the three previous years of the study in which the coaches recorded their weekly contact with their students.

Question 1: How many contacts occur between students and coaches, what is the duration of that contact, and what number and percentage of the contacts are two-way?

There were a total of 2,260 contacts between students and coaches during Year 4 of the study. The total number of contacts per student ranged from 1 to 63 contacts. The average number of contacts between students and coaches was 14.4 (SD = 10.0) and the median number of contacts between students and coaches was 13. Figure 3 shows the distribution of the number of contacts occurring between a student and a coach during Year 4 of the study. Seventy-five percent of the students (75%) had 21 or fewer contacts with their coach during Year 4 of the study. College Possible does not specify the number of contacts a coach is expected to have with each student in their portfolio over the course of the academic year because they expect that the needs of individual students will vary¹³.

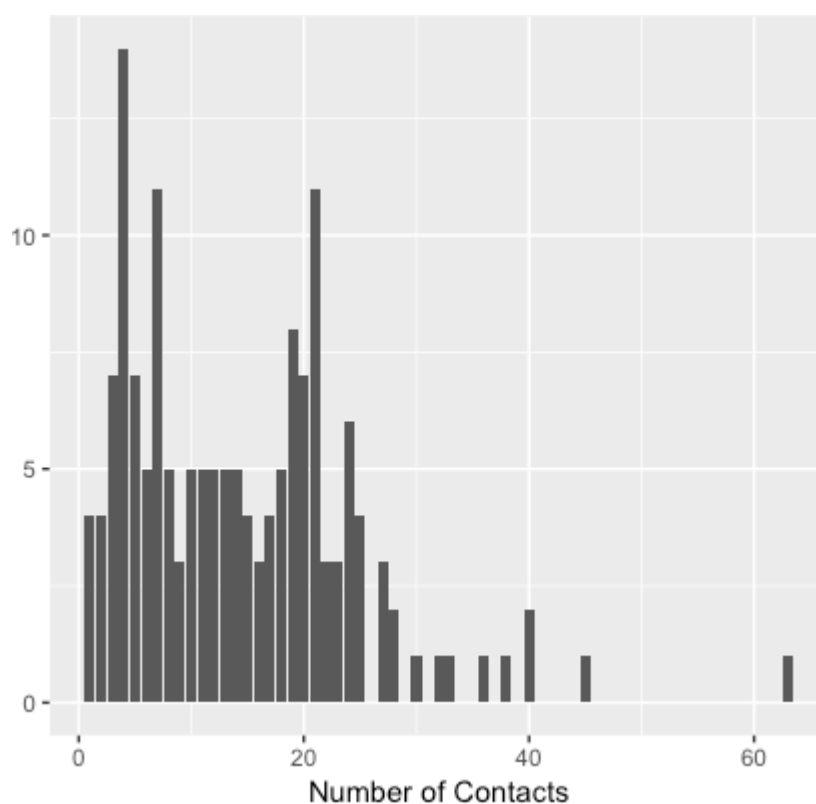


Figure 3. Frequency of Contacts between a Student and a Coach (N = 2,260).

The duration of a contact between students and coaches ranged from 0 minutes to 120 minutes, and almost half of the contacts (49%) had a duration of 0 minutes. Coaches were instructed to record a duration of 0 minutes when a contact was a one-way or attempted contact. Figure 4 shows the distribution of the duration of the subset of contacts that were recorded as lasting for more than 0

¹³ Beginning in fall 2016 College Possible expected coaches to have a minimum of 3 voice-to-voice contacts with enrolled students each year. The expectation for unenrolled students is slightly different. However, because the implementation evaluation design for this study did not make a distinction between enrolled and unenrolled students, it is not possible to use this benchmark in the analysis.

minutes. About half of these contacts lasted between 5 and 10 minutes and the modal, or most frequently occurring, duration was 5 minutes. A modal value of 5 minutes is not surprising given that when the coaches use tech-connected communication methods to contact a student, they are instructed to record a duration of 5 minutes to account for the time it takes them to prepare, write, and edit the message before they send it. As with the number of coach-student contacts, College Possible does not specify the number of minutes that should occur for a coach-student contact because the duration should be based on individual student need.

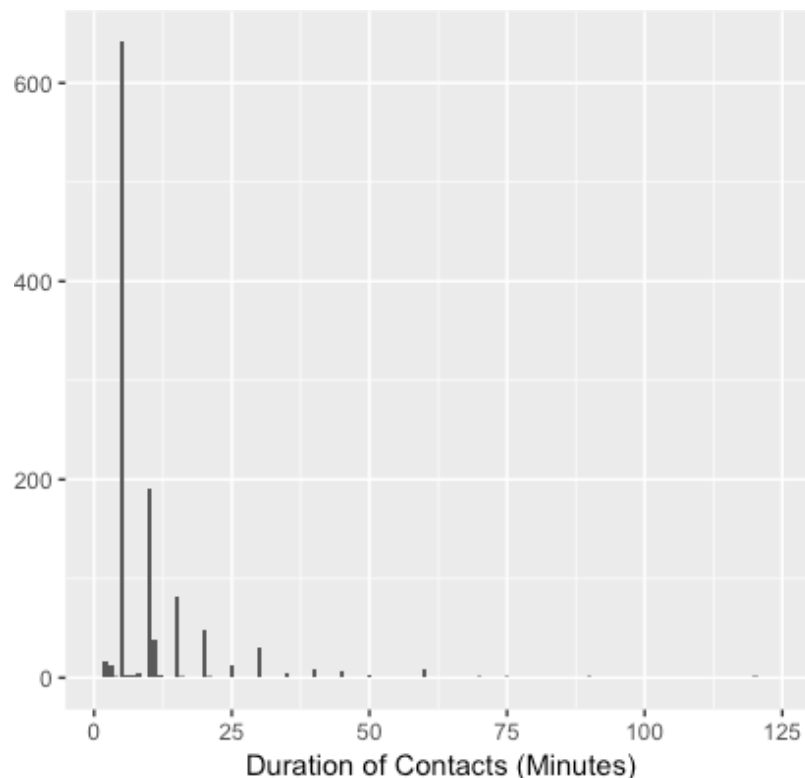


Figure 4. Adjusted Frequency of the Duration of Contacts Between Students and Coaches (N = 1,142).

With respect to the total duration of coach-student contact during Year 4, the number of minutes ranged from 0 minutes to 450 minutes with 18% of the students receiving 0 minutes of contact during the year. For the students who had more than 0 minutes of contact with their coach during the year the average total duration of coaching per student was 84 minutes, but the median duration was 60 minutes, or one hour.

For each contact the coach classifies the communication outcome as either a one-way contact (i.e., a coach reaches out to a student, but there was no response from the student, or a student reaches out to their coach, but there was no response from the coach) or a two-way contact (i.e., a coach reaches out to a student and the student responds, or a student reaches out to a coach and the coach responds). College Possible places a higher value on a two-way contact than a one-way contact because a two-way contact allows the coaches to coach their students. Of the 2,260 contacts that occurred during Year 4 of the study, about 50% were two-way contacts.

Question 2: What number and percentage of coach-student contacts are initiated by students, what is the duration of those contacts, and what number and percentage of the contacts are two-way?

In the 2016-2017 academic year, which was Year 4 of the study, College Possible began tracking whether a coach-student contact was initiated by the coach or the student. Of the 2,260 contacts that occurred during Year 4, 10% were initiated by the students¹⁴. Table 3 shows the characteristics of the student-initiated contacts, as well as a comparison with the characteristics of the coach-initiated contacts. Nearly all (97%) of the student-initiated contacts were two-way contacts, a contrast with the coach-initiated contacts of which only 45% were two-way contacts.

The average student-initiated contact lasted longer than the average coach-initiated contact when considering only those contacts that lasted more than 0 minutes. As shown in Table 3, the median duration of a student-initiated contact was 8 minutes while the median duration for coach-initiated contacts was 5 minutes. However, the longest lasting contacts occurred for the coach-initiated contacts as illustrated by the ranges in the duration of contact for the student-initiated contacts and the coach-initiated contacts. Still, even in the presence of outliers, the average for student-initiated contacts (11.9 minutes) was higher than the average for coach-initiated contacts (9.0 minutes). Over the course of the year, for students who had more than 0 minutes of contact with their coach, the median total duration of coach-student contact was 150 minutes for student-initiated contacts. The median of the total duration of contact for coach-initiated contacts was much shorter, at 80 minutes.

Table 3

Characteristics of Student-initiated Contacts and Coach-initiated Contacts

	Student-initiated Contact	Coach-initiated Contact
Percentage of contacts that were two-way	(N=226) 97%	(N=2026) 45%
Duration of contact (in minutes)	(N=219)	(N=1,142)
--average	11.9	9.0
--median	8.0	5.0
--standard deviation	11.2	9.5
--range	1 – 70	1 - 120
Total duration of contact over the year (in minutes)	(N=219)	(N=1,142)
--average	147.5	100.1
--median	150	80
--standard deviation	68.1	83.4
--range	5 – 450	5 - 450

¹⁴Information about whether the coach or the student initiated the contact was missing for 8 of the 2,260 contacts that occurred during Year 4 of the study.

Question 3: Which curriculum topics are addressed during the contact between coaches and students?

As noted earlier, college coaches have access to College Possible's structured curriculum to guide their coaching sessions and meetings with students. The college coaching curriculum includes 16 modules that cover academic, social, and financial topics. Over the course of the 2016-17 academic year, the minimum number of unique topics a student received was 1 and the maximum was 21, with the average number of topics received by a student being 8.2 (SD = 5.1). This value is slightly above the median (8). The percent of students receiving each topic are presented in Figure 5. Two additional categories are presented: Other Topic, which a coach would check if he/she addressed a topic that was not explicitly listed in the curriculum, and More than Two Topics, which indicates that a coach addressed more than two topics during their outreach with a student. From Figure 5, we can see that the most common topic by far was More than Two Topics. Due to the large proportion of communication records that included this category, we disaggregated these data and then counted each topic separately.

Figure 6 shows the percent of students receiving each topic, whether a topic was the sole content of a contact or appeared in combination with one or more other topics. Topics which over half of the students received were Financial Aid, Registration, Academic, Mapping College/Degree Audit, General, Internships and Pre-Programming (which is a fall registration and enrollment call at the start of the new fall semester). The two topics that appear at the bottom of Figure 6 were each used in only one coach-student contact.

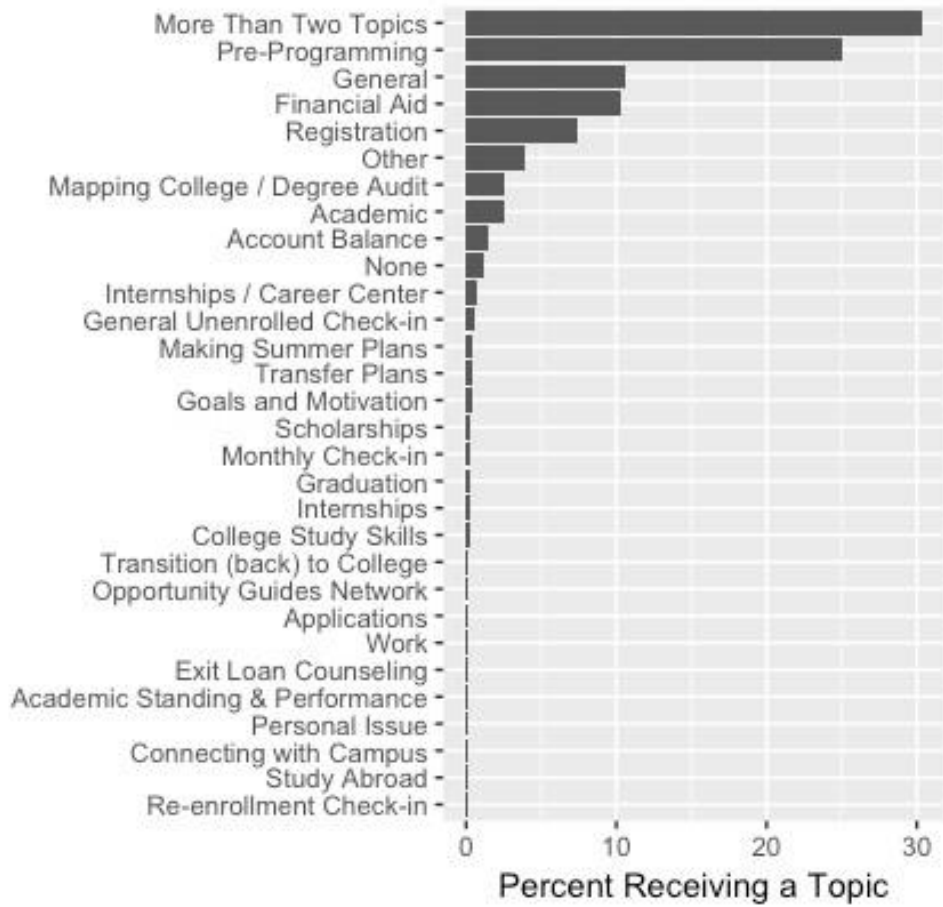


Figure 5. Percent of Students Receiving Each Curriculum Topic (N = 157).

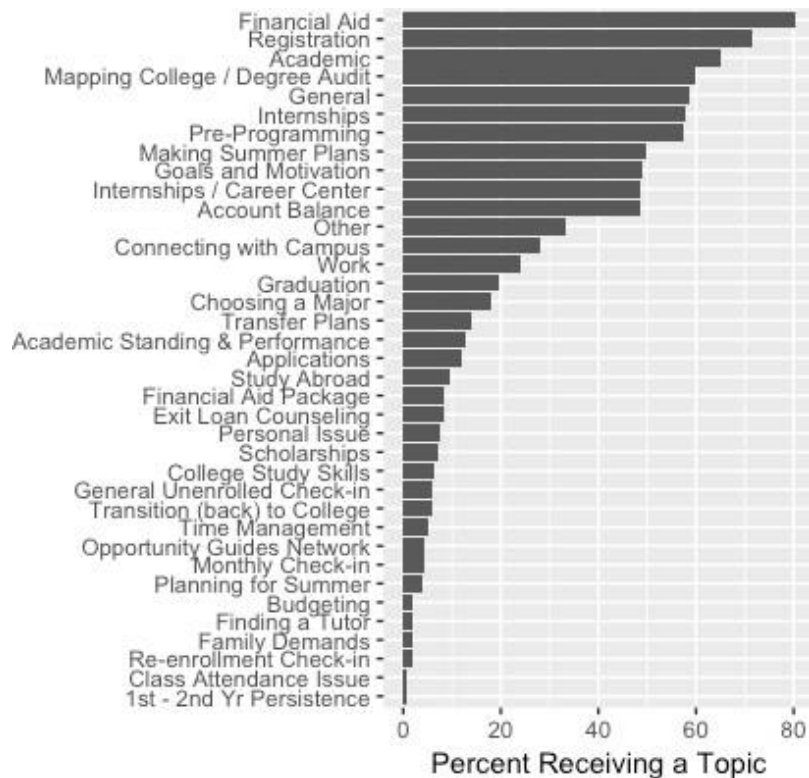


Figure 6. Percent of Students Receiving Each Topic when the Category of More Than Two Topics is Disaggregated (N = 157.)

Question 4: To what extent do the interactions between coaches and students include the characteristics of quality coaching practices identified by College Possible for the coaching program?

Overall, the data from the coach observation checklist indicate that the interactions between coaches and students include the characteristics of quality coaching practices identified by College Possible (See Table 4). On a scale of 1 to 4, with 1 equal to not meeting, 2 equal to approaching, 3 equal to meeting, and 4 equal to exceeding, the median rating by coach supervisors was 3.0 on 10 of the 12 coaching practices. Two practices with median ratings under 3.0 were Preparation and Action Plan.

These results are based on data from 32 checklists that were completed by coach supervisors between October, 2016, and May, 2017. The data measured the skills of 25 coaches, each of whom worked with students from at least one of the six colleges included in this study. Half of the checklists were completed during the supervisor’s first observation of a coach that year. College Possible targeted one coach observation per quarter.

Table 4

Implementation of Quality Coaching Practices

	Mean	Median	Range	N
Rapport and Relationship Building				
Tone: Coach exhibits an engaging and enthusiastic presence; tone is professional and appropriate for topic at hand	3.0	3.0	2 - 4	32
Personalization: Coach references previous conversation or information that is unique to student; uses relevant examples and experience	3.2	3.0	2 - 4	32
Student Voice: Coach proactively solicits student input throughout the conversation	3.0	3.0	2 - 4	31
Effectively Gathering Information				
Preparation: Coach has thoroughly reviewed student record and knows what information they need; coach has a clear plan for call	2.9	2.8	2 - 4	29
Questioning Techniques: Coach asks broad questions and appropriate follow-up/probing questions to get deeper level of insight	2.58	3.0	1 - 4	31
Active Listening: Coach clarifies and repeats what they heard to ensure understanding	3.0	3.0	2 - 4	28
Identifying Challenges and Opportunities				
Identification: Coach synthesizes student challenges and helps identify root causes; helps student see opportunities	2.8	3.0	2 - 4	27
Forward-Thinking Approach: Coach helps student project or anticipate future challenges or opportunities	3.0	3.0	2 - 4	28
Balances Short- and Long-Term: Coach spends appropriate time and attention on immediate concerns and future opportunities	2.9	3.0	2 - 4	24
Creating an Action Plan				
Resources: Coach outlines specific, appropriate, quality resources for student	3.0	3.0	2 - 4	27
Action Plan: Coach works with student to generate action steps and timeline, including a plan for follow-up	2.4	2.0	2 - 4	29
Accountability: Coach uses language that develops student accountability	2.7	3.0	2 - 4	27

Question 5: How well does the training and ongoing supervision of the coaches support the coaches to provide quality services?

To measure the program's fidelity of implementation with regards to the effectiveness of the training and ongoing supervision provided to the college coaches, CAREI facilitated focus groups with 25 of the 37 coaches who had worked with students in the six colleges included in the study. The major themes in the coaches' responses are summarized here. Because some of the coaches worked in the tech-connected coaching model and other coaches worked in the campus-based coaching model, we also note where there were differences in how the two groups of coaches perceived the training and ongoing supervision provided by College Possible. We recommend caution when generalizing these results to all 37 of the coaches who worked with the students in this study because the experiences of the 25 coaches who participated in the focus groups may not adequately reflect the experiences of the other 8 coaches who did not participate in the focus groups.

Areas in which the coaches felt most prepared to provide quality services. Coaches working in both the tech-connected and the campus-based coaching models recognized that they felt most prepared to provide resources to students when students were completing their financial aid applications (FAFSA).

Three coaches said they felt most prepared to direct students to resources on their campus for other financial related concerns; for example, to find job internships, or to help students interested in transferring. Another coach commented that in many cases the challenge was to find a job or internship that would allow students to overcome financial difficulties without having to temporarily stop out of college.

Also, two coaches mentioned they felt most prepared to help students with academics, such as asking them how they were doing in classes and helping them with some specific content areas or with feedback on writing academic papers.

Coaches attributed their preparation in the areas described above mainly to their own experiences instead of the training provided by College Possible. They talked about how they drew on their personal experiences and their knowledge of the institution to help students completing financial aid applications or transferring from one college to another. This illustrates one of the main benefits of using a near-peer coaching model. Coaches indicated that their previous knowledge was especially important at the beginning of the year, as these topics were not addressed until later on in training provided by College Possible. Some coaches explained that the curriculum provide by College Possible contained resources for students, but not so much for coaches.

Areas in which the coaches felt least prepared to provide quality services. Coaches working in both coaching models (tech-connected and campus-based) said that although their role was supposed to be that of a coach, they did not feel ready to provide coaching to students. Several coaches explained that while they felt prepared to check in with students about things such as financial information and registration for classes, they did not feel adequately prepared to interact and communicate with the students, nor to offer support according to the students' individual needs.

Six coaches indicated that they did not feel sufficiently prepared to coach students because the content of the College Possible training was not adequate and was not timely. They perceived that in early fall, at

the time of their first encounters with the students in their portfolios, they were not prepared to start a coaching relationship with the students, that is, a relationship that places individual student needs at the center.

Several coaches talked about feeling challenged to support their students, especially when a student had a personal or mental health problem, when a student was less responsive to the coach's outreach attempts, or when a student was attending a two-year college. Given the importance of these issues for coaches, they are each detailed below.

1) Not feeling prepared to support students with personal or mental health issues.

Coaches indicated that when they encountered students experiencing personal and mental health issues that interfered with their college experiences, they felt overwhelmed and emotionally affected because they did not think they were prepared to support and provide resources to these students. For coaches, the lack of preparation on how to assist them was contradictory with the College Possible's mission to help students get into and complete college.

2) Not feeling prepared to reach the "less responsive" students. Coaches also noted feeling unprepared to successfully reach out to and follow up with students who were less responsive to their attempts to contact them. They explained that, as they had expected, it was easier to reach students who were responding or initiating the contact. The challenge for the coaches was to keep themselves accountable to students in their portfolio who did not respond to their attempts for communication.

Three coaches noted that they would like to have more tools to be more effective in identifying and then persisting with the students who had not yet reached out to their coach, but yet wanted to be coached. Also, seven other coaches perceived that it was equally important to identify students who are no longer interested in participating in the program and then be able to remove them definitively from the coach's portfolio of students.

3) Not feeling prepared to support students attending two-year community colleges.

Coaches working in the tech-connected coaching model, which was the model provided at both of the two-year colleges included in this study, reported that, in general, College Possible has focused on four-year colleges instead of two-year institutions. The coaches said this focus may have contributed to what they viewed as a lack of knowledge among the coaches about how to support students attending a 2-year college.

In addition to feeling less prepared in the three areas described above, some coaches felt less prepared to provide resources when students experienced difficulties in situations such as: applying for Dream Act or DACA, resolving housing issues, addressing detailed aspects of FAFSA that were beyond the standard steps, and facing financial challenges, such as having defaulted on a loan or needing to get a loan to finish a semester.

Another factor in the quality of coaching the coaches felt prepared to provide was the coaches' perception that they did not have enough information about the colleges the students were attending. Several coaches, from both the tech-connected coaching model and the campus-based coaching model,

expressed concern that they did not have sufficient information to provide students with useful resources within the student's college. For example, coaches did not know how student registration worked or who the student should contact to talk to about scholarships. Moreover, campus-based coaches said that sometimes they felt they were stepping on the toes of the college's academic advisors when students asked the coaches for help with registration, although this varied by institution.

Suggestions for additional curriculum topics and training. The coaches also offered substantive suggestions for how College Possible could strengthen the training and on-going support for the college coaches in order to improve the coaches' capacity to support students with quality coaching services. The first four suggestions focus on training and the last suggestion addresses new topics the coaches recommend be added to the coaching curriculum.

1) Increase the coaches' understanding of College Possible's expectations for the coaches' role in the college program, specifically regarding the emphasis on meeting College Possible standard coaching benchmarks. In the focus groups, coaches were asked to think back to what they learned during the year and what they wish they had known when they began. There was agreement among most of the coaches that they wished they had begun their coaching work with a better understanding of how to balance College Possible's expectations, as expressed in the benchmarks that coaches need to achieve, with their own expectations about their work, which centered on responding to different students' needs. Overall, the coaches perceived that their supervisors placed a strong emphasis on coaches needing to meet College Possible's standard coaching benchmarks. Looking back, the coaches now recognized that their own expectations about responding to the students' individual needs was not aligned with the program goal of meeting benchmarks, and they wished they had known how to better balance these two sets of expectations when they began their coaching work. Moreover, coaches perceived there was too much emphasis in the College Possible training on administrative data rather than training on actually coaching students, which the coaches see as the core of their work.

2) Prepare coaches to better meet the College Possible benchmarks when some portfolios might include significant numbers of students who are unresponsive or more difficult to engage. The coaches also indicated that they felt challenged to meet the College Possible benchmarks because, in their view, the benchmarks were designed to work well with very responsive students, but not with students who had more difficulties, or did not fit the "traditional student" profile (e.g., older students, students with a family, etc.). Five coaches, both those working in the tech-connected coaching model and those working in the campus-based coaching model, commented that they learned to resist the pressure to pursue the benchmark and instead focused on responding to what they thought their students needed.

In addition, four coaches working in the tech-connected coaching model were critical of what they perceived as their supervisors' assumption that all coaches have similar portfolios and all of their portfolios were full of very responsive students, when from the coaches' perspective, this was not the case.

3) Prepare coaches to develop a meaningful relationship with students (campus-based coaches). Related to the finding that the coaches did not feel prepared to coach students, the coaches noted that creating a trusting relationship with students is critical for their work. However, they perceived that developing and maintaining effective relationships with students was not adequately addressed or prioritized in the trainings they received prior to or during the program. One coach suggested working more at the beginning of the year with the students' previous semester summaries to be better prepared for the coaches' initial meetings with students when they arrive on campus.

4) Prepare coaches on how they can become familiar with resources available to students at each institution. Several coaches indicated that there was no information available at the college about the College Possible program or their work as coaches. Thus, the coaches found that they had to develop the partnership with the staff at the college. Because the college coaches typically work at College Possible for only a single academic year, it is up to the new coaches to establish the collaboration with the colleges each year. Also, coaches said that if a coach would be working at the same institution they had attended as a student, then that coach was excluded from the training about the resources available on that campus. They indicated that this had a negative impact on their work because they did not necessarily have the information they needed about the diverse resources available on the campus. Coaches noted that receiving support from College Possible to become familiar with both the people and the specific resources at each campus would be important to help them to support students better.

Other coaches indicated that in some cases, College Possible coach supervisors who knew the college had introduced coaches to the advisors and other people at the campus, but this was not the norm for supervisors. Coaches also pointed out that, depending on the campus, some coaches did receive training about campus resources, but they perceived that the information was not timely for them.

Four coaches working in the tech-connected coaching model suggested creating more formalized and structured meetings with people at colleges to initiate the development of a partnership between College Possible and the institutions. In cases where a prior relationship exists between College Possible supervisors and the institution, then the coaches should be informed and incorporated into that partnership, rather than having to start building the partnership relationships from zero.

5) Prepare coaches to support students attending community colleges (tech-connected coaches). Five coaches working in the tech-connected coaching model with students who were attending a community college described a need to increase coaches' knowledge on processes such as registration or transferring to another institution. Coaches commented that knowing more about community colleges, in general, might benefit all students, even those who were in a four-year institution (as they can take courses in a community college). Coaches also noted that it is essential that College Possible supervisors consider two-year colleges as valid options for students.

In addition to the above suggestions for how College Possible could strengthen the training provided to coaches, three coaches working in the tech-connected coaching model emphasized the need for additional training on the topic of mental health at the beginning of the year.

Other suggestions to help coaches be more effective. In the focus groups, coaches offered two additional recommendations for how College Possible could improve its existing practices in order to help the coaches be more effective with students:

1) Ensure that coaches have adequate time available to use the College Possible tools for planning meetings and conducting follow-up with students. Coaches valued the tools College Possible had created to guide the coaches in how to plan their student contacts and follow up coaching sessions. However, they noted that the implementation of the new tools had been weak for several reasons: the tools were introduced after the beginning of the year, the coaches did not have time to complete their plans before the start of the campaigns, and the coaches didn't have any opportunities to make timely adjustments to their initial plans. Thus, although they saw the potential of these tools, they perceived that they were not able to use them effectively. One coach suggested that it would be helpful for coaches to be able to start using the planning tool at the beginning of the year, not when they were already serving students.

2) Allow students to request that College Possible discontinue their enrollment in the college program. (tech-connected coaches). Coaches working in the tech-connected coaching model said that it would be helpful and efficient to have a way to unenroll students from the program when the students have expressed that they are no longer interested in participating. Although coaches recognized that beginning in 2017 the coaches have been allowed to ask specific students if they want to discontinue the program, the coaches suggested that a simpler strategy was needed to identify those students. Examples of new strategies offered by the coaches were sending an email to students or considering a verbal notice from a student as sufficient proof to remove them from the program.

Question 6: To what extent does the intensity and content of the coaching impact college persistence and graduation?

Intensity of coaching as a predictor of persistence in college. At the end of the 2017 spring semester, 88% of the College Possible students (N=93) were retained by their college into the next academic year (they were eligible to enroll for classes in fall 2017 and had enrolled for classes). This high percentage makes sense given that students who have been enrolled in their fourth year of college would be likely to maintain their eligibility to continue their courses toward a degree. However, because of this high percentage, any statistical testing of the relationship between the intensity of coaching (as measured by the number of contacts and the percent of contacts that were two-way contacts) and retention into year five of college is highly problematic and yields large standard errors. There is evidence of a very small effect of the number of coach-student contacts on retention into the fifth year of college based on the Spearman rank correlation of 0.26 that is statistically significant. Similarly, the Spearman rank correlation was 0.21 and significant for the percent of two-way contacts between students and coaches and retention into the fifth year of college. However, any correlation below 0.3 should be interpreted with extreme caution. Thus, in contrast to the findings in the previous

year, in Year 4 we found that intensity of coaching, as measured by the number of contacts and the percentage of two-way contacts, did not have as large of an effect on students' retention into their fifth year of college.

In contrast, there was no evidence of a statistically significant relationship between the number of coach-student contacts a student received and the student's cumulative GPA in spring 2017, or the relationship between the percent a two-way contacts a student had with a coach and the student's cumulative GPA in spring 2017. The correlation between the number contacts and the student's cumulative spring 2017 GPA was 0.02, which was not significant. The Spearman rank association between the percent of two-way contacts between a student and a coach and the student's cumulative spring 2017 GPA was 0.10, which also was not statistically significant, which indicates there is no evidence of a relationship between students' cumulative GPA in spring 2017 and the percent of two-way contacts they had with their coach during the year.

Additionally, the analyses indicated there was not a statistically significant relationship between the number of coach-student contacts and the student's cumulative credits earned by spring 2017; the correlation was 0.14 and not statistically significant. Nor was there a statistically significant relationship between the percent of two-way contacts a student had with their coach and the student's cumulative credits earned by spring 2017. The Spearman rank association between the percent of two-way contacts and the student's percent of cumulative credits earned by spring 2017 was 0.01 and statistically significant. However, in this case the statistical significance means there is strong evidence that the association between the percent of two-way contacts and the student's percent of cumulative credits earned is close to 0.

Content of coaching as a predictor of persistence in college. This section summarizes analyses of the relationship between the curriculum topics students received in their contacts with their coaches during the 2016-2017 academic year and three persistence variables: cumulative GPA, cumulative credits earned, and whether the students was retained into the next academic year.

Figure 7¹⁵ shows the difference in receiving a particular topic between students who were retained by their college into the next academic year and students who were not retained by their college into the next academic year at the end of spring semester 2017. The graph on the left in Figure 7, which is labeled "Retained," displays the topic breakdown for students who were retained by their college for the next academic year. For each topic, the red bar indicates the percentage of students who were retained and had received that topic. In contrast, the blue bar for each topic indicates the percentage of students who were retained, but had not received that topic. For example, the bars for the topic of financial aid in the graph on the left of Figure 7 show that almost 60% of students who had received coaching on that topic were retained by their college for the next academic year (red bar). The blue bar for the topic of financial aid on the left half of Figure 7 shows that about 30% of the students who were retained had not received that topic. This result is not surprising, given that students need to complete their financial aid renewal in order to enroll, and College Possible designed the financial aid topic to help coaches support students in this process. The topics of pre-programming¹⁶, fall registration, internships,

¹⁵ Figure 7 needs to be interpreted with caution. Some topics were received by only a very few students (See Figure 6). This results in unstable estimates and therefore, statistical testing was not performed. Nonetheless, we have included the information in this report because it addresses one of the SEP implementation evaluation questions.

¹⁶ Coaches use this topic when they are making initial contact with students at the beginning of the academic year.

connecting with campus, and graduation are other topics that were received by a larger portion of the students who were retained than students who were not retained.

The graph on the right in Figure 7, which is labeled “Not Retained,” displays the topic breakdown for students who were not retained by their college into the next academic year at the end of spring semester 2017. In this graph, the red bar for each topic shows the percentage of students who were not retained, but had received coaching on that topic. In contrast, the blue bar for each topic in this graph shows the percentage of students who were not retained and had not received coaching on that topic. For example, almost 60% of the students who had received the topic of personal issue were not retained at the end of spring semester 2017. A higher percentage of students in the group who were not retained by their college had also received the topics of choosing a major, transfer plans, and applications. Because these topics address areas that students who are considering switching their college would likely be exploring, it is reasonable that these topics would be more common among students who were not retained by their college.

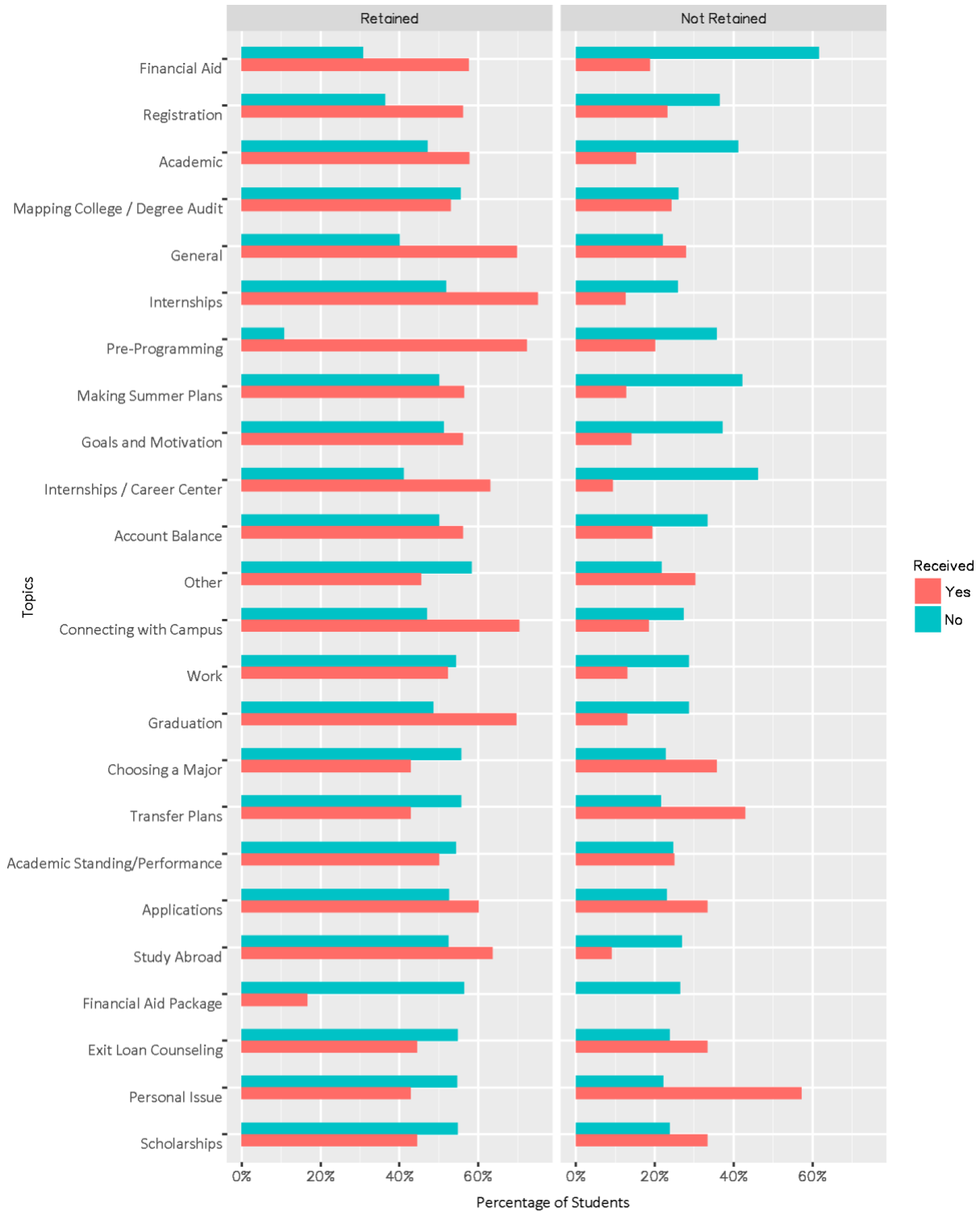


Figure 7. Student Retention by Whether Topic was Received.

Figure 8 provides a comparison, by topic, of the average cumulative spring 2017 GPA between students who received the topic in their contact with their coach and students who did not receive that topic in their contact with coaches. For each topic, the length of the red bar indicates the average cumulative GPA of students who received that topic and the length of the blue bar shows the average cumulative GPA of students who did not receive that topic. Therefore, topics that have a long red bar and a short blue bar are topics that appear to be associated with a higher cumulative GPA when included in the coaching a student receives. Conversely, topics that have a short red bar and a long blue bar are topics that appear to be associated with a lower cumulative GPA when included in the coaching a student receives.

The results suggest that receiving topics such as financial aid, connecting with campus, study abroad, and scholarships is associated with a higher cumulative GPA, whereas receiving topics such as personal issues, choosing a major, transfer plans, and applications is associated with a lower cumulative GPA. However, it is important to remember that these data can only suggest a relationship or association between whether a student receives a particular topic in their contact with their coach and the student's cumulative GPA, and the data do not provide evidence of the direction of the relationship, nor evidence of a causal relationship between a topic and cumulative GPA.



Figure 8. Average Cumulative Spring 2017 GPA by Whether Topic was Received.

For each topic, Figure 9 compares the cumulative credits students had earned by spring 2017 (as expressed by a percentage that indicates the number of cumulative credits earned divided by the number of credits needed to graduate) between the students who received that topic in their coaching and students who did not receive that topic. The interpretation of Figure 9 is similar to the process for interpreting Figure 8. Topics in Figure 9 that have a long red bar and a short blue bar are topics that appear to be associated with a higher percentage of credits earned when included in the coaching a student receives. Topics associated with a higher percentage of credits accumulated included financial aid, registration, graduation, and study abroad. In contrast, topics associated with a lower percentage of credits accumulated included choosing a major, transfer plans, financial aid, and academic standing and performance. Once again, it is critical to remember when interpreting these results that the data do not provide evidence on the direction of the association between these topics and credit accumulation, nor do the data provide evidence of a causal relationship between the topics a student receives in his/her contact with a coach and the student's credit accumulation.

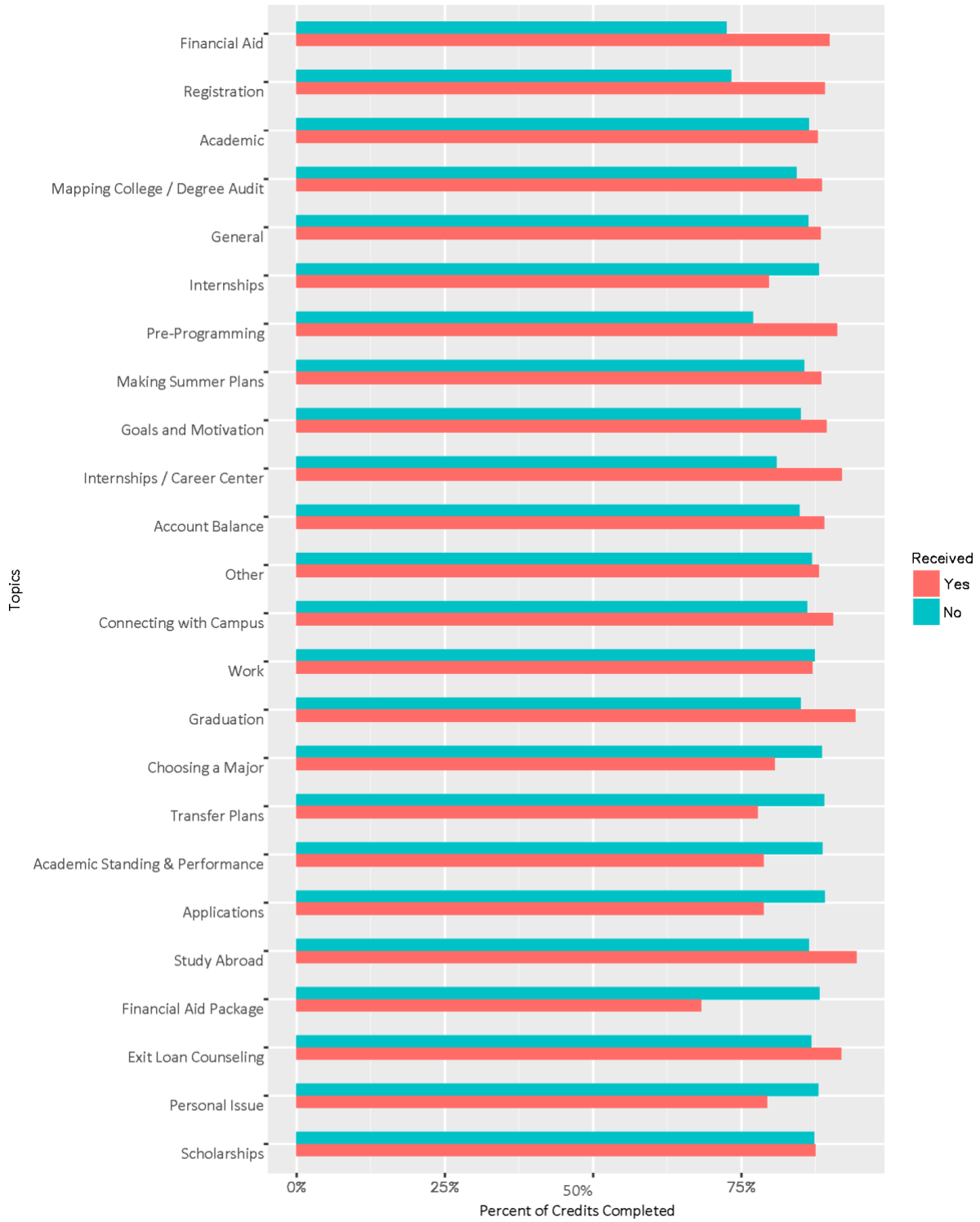


Figure 9. Percent of Cumulative Credits Completed by Spring 2017 by Topic.

Question 7: To what extent does the percent and number of coach-student contacts that are initiated by the student, rather than the coach, impact college persistence and graduation?

In this final year of the study we were able to investigate the extent to which the proportion of coach-student contacts that were initiated by the student, rather than the coach, impacted college persistence. Based on data from the 93 College Possible students who were still enrolled in college¹⁷ at the end of Year 4 of the study, the results indicate that students, on average, initiated about 11% of their coach-student contacts. The percentages range from 0% to 100%, with a standard deviation of about 0.17. Therefore, the distribution of the percent of contacts that were initiated by the student was large, which would make all estimates highly unstable. For this reason, we did not conduct statistical tests to address this implementation evaluation question.

Question 8: To what extent does the program's impact on persistence and graduation differ between these two groups of students: a) students who only had *in-person* communication with their coach and students who had a mix of *in-person* and *tech-based* communication with their coach b) students who only had *tech-based* communication with their coach?

As described earlier, coaches use a variety of communication methods to facilitate their outreach to students. The purpose of this implementation evaluation question is to explore whether some communication methods are more effective than others. In previous years of the study, CAREI has grouped the communication methods into two categories: in-person and tech-based. However, in Year 4 of the study, College Possible staff indicated that the evaluation results would be more useful to their organization if CAREI would revise the way it categorized the different communication methods to be consistent with the categorization College Possible was employing in other evaluation studies. Thus, in Year 4 of the study we grouped the different communication methods into two categories: *voice-to-voice* contact and asynchronous or not voice-to-voice contact. Then, for each student we calculated the percent of their coach-student contacts that used voice-to-voice communication methods.

For the 93 College Possible students who were still enrolled in college at the end of Year 4 of the study, the average student had voice-to-voice communication with their coach for 44% of their contacts. The distribution of the percent of contacts that used voice-to-voice communication methods was wide, ranging from 0% to 100% and the standard deviation was 0.28. In situations like this, when the distribution of the data is very wide, all statistical estimates are unstable. For this reason, we did not conduct statistical tests to address this implementation evaluation question.

Results of the Online Student Survey

The purpose of the survey was to provide descriptive information about the fidelity of implementation of the college program model. CAREI developed the student survey in collaboration with College Possible in 2016. In late spring 2017, College Possible staff sent an email to students in the intervention group and invited them to complete the online survey. The email informed students that their participation in the survey was voluntary and that only researchers at CAREI would have access to their

¹⁷ Impact data were only available for students who were enrolled during 2016-2017 at the same college where they began as a first-year student in fall 2013.

individual responses. However, only 11 of the 508 students in the intervention group completed the survey for a very low completion rate of 7%. The low completion rate strongly indicates that the survey results are unlikely to represent the experiences of all of the students in the intervention group. Due to this limitation, the survey results were not included in this evaluation report.

Evaluation Results: Interpretation and Limitations

This final evaluation report summarizes the results from a longitudinal evaluation of College Possible's programming for college students. This report includes impact evaluation results from the fourth year of college for the 2013 cohort of students, as well as impact evaluation results from the first and second years of college for a combined cohort of students who entered college in fall 2013, 2014, and 2015. In addition, this report includes results of the implementation evaluation for the 2013 cohort during the final year of the study. The results presented in this report reflect the changes to the study design that were described in the SEP Addendum (May 2016).

Interpretation of the Impact Evaluation Results

Previous results from the impact evaluation for the 2013 cohort in years 1, 2, and 3 of the study indicated there was no effect on students' persistence in college, as measured by retention into the next academic year, cumulative GPA, or cumulative credits earned¹⁸. Further, the three-year graduation rate for students attending two-year colleges was 7% for College Possible students and 3% for students in the comparison group. None of the students in either group who were attending two-year colleges had graduated in spring 2015. We did not run statistical tests to examine the significance of these observed differences because the number of students who graduated was too small at that point in the study.

The results of the impact analyses for the 2013 cohort in year 4 showed that College Possible students graduated by the end of year 4 at a greater rate than students in the comparison group. In contrast, the results also indicated that College Possible students and students in the comparison group had no difference in average cumulative GPA or credits earned. The discrepant results between graduation rates and average GPAs may be due to the fact that students do not need to reach a particular GPA threshold to graduate. However, because students do need to reach a particular credit threshold to graduate the discrepant results between graduation rates and cumulative credits earned is less easily understood and therefore an area for future research. If students earned the same average number of cumulative credits, then why did they not graduate at similar rates? One explanation is that students in the College Possible group were more likely to take the credits needed to graduate with a particular degree than students in the comparison group, suggesting students in the comparison group took more credits unrelated to the degree they were seeking. In other words, students in the comparison group had the same number of credits, yet they were not ready to graduate because more of those credits were unrelated to the degree they were seeking. Future studies should examine credits earned in more detail to see if College Possible students are less likely to take credits unrelated to the degree they are seeking than other students.

The results of the impact analyses for the combined cohorts show no statistically significant effect of College Possible on any outcome variable. The purpose of combining cohorts was to increase statistical power, with the idea that previous non-significant findings were the result of the previous studies being

¹⁸ This persistence variable was analyzed for the first time in year 3 of the study.

statistically under-powered. However, because we did not find evidence of an impact of College Possible on the study outcomes even with the increase in statistical power, this suggests there may be other explanations for the lack of a statistically significant effects. Because these analyses were limited to outcomes in year 1 and year 2, future research should examine the effects of College Possible on year 3 and year 4 outcomes with a larger sample size.

When data from the combined cohorts were analyzed by student subgroups, statistically significant differences were identified. For example, in the first year of college, Hispanic students earned significantly more credits than Asian students (the reference group in the statistical analysis), and in the second year of college, White students earned significantly more credits than Asian students. Both of these effects were still statistically significant when enrollment in other college success programs was added to the model.

As noted previously, each regression model was fitted with and without a variable indicating whether or not a student was participating in other college success programs. The purpose of including this variable was to determine if any program effects observed could be attributed to simultaneous participation in multiple college success programs. The only statistically significant program effect observed was on year 4 graduation rates for the 2013 cohort. The results with and without the variable indicating enrollment in other college success programs were the same, suggesting the effect observed on year 4 graduation rates can be attributed to participation in College Possible, not other college success programs.

Limitations of the Impact Evaluation

There are several limitations for the impact evaluation that should be considered when interpreting the year four results. The first limitation is that the current design does not control for unobserved variables, which limits the strength of any inferences about the impact of the College Possible program. An attempt to account for potential confounding variables was made by including student-level covariates (i.e., race/ethnicity, gender, first generation status, and PELL eligibility) thought to affect the outcomes, as well as a variable indicating enrollment in other college success programs, which could also have an effect on the outcomes.

An additional limitation to the impact evaluation study relates to the generalizability of the current findings to other samples, contexts, etc. The current study was limited to students who graduated in one of two school districts and then enrolled in one of six post-secondary institutions. It is unknown if the results of the current study would generalize to students from other school districts or post-secondary institutions.

Finally, for most analyses a significant number of students were missing data (i.e., >5% missing). In all cases, sensitivity analyses were performed to ensure that data was not missing for systematic reasons. In all cases, missing data patterns were unrelated to being in the College Possible group or the comparison group and to all outcome variables. The only variable that missing data patterns were related to was college. In other words, data was systematically missing by college, such that some colleges provided complete or nearly complete data and others provided files with significant amounts of missing data. Including college in the models as a dummy-variable provides statistical control of this effect.

We recommend some caution when interpreting results for the persistence measure of retention into the next academic year. There may have been significant changes in the data between when we asked

the colleges to pull data from their administrative records in June and the end of the subsequent fall semester when the administrative data on student enrollment in fall courses would be final. Because the retention measure was an indication that a student was both eligible to enroll in courses for the next academic year *and* had already enrolled in courses for the next academic year, the data that were pulled in June of each year did not reflect students who had not yet registered for fall courses or took action before the start of the fall semester to change their eligibility to enroll in courses (e.g., by taking actions such as paying off overdue institutional charges, returning institutional property, or taking summer courses to increase their cumulative GPA). However, analyses of an alternative measure of retention into the next academic year, which was provided to CAREI by College Possible staff, showed results that were consistent with our analyses of the retention data pulled by the colleges in June of each year.

The value of the current study is limited because impact data were only available for students who continued to enroll in courses at the post-secondary institution where they began their first year of college. By the fourth year of the impact evaluation on the 2013 cohort, data were not available to CAREI on 40% of the students in the College Possible group and 42% of the students in the comparison group. For the combined cohorts, no data were available to CAREI on 25% of the students in the College Possible group and 27% of the students in the comparison group by the end of the students' second year of college. Consequently, we cannot know how many of these students transferred to another college and possibly graduated from that college or are still on track to graduate in the future, or transferred to another college and then stopped out and returned to enroll in courses at that college, or dropped out of college entirely. More importantly, for the purpose of this study, we cannot know if there are significant differences between the students in the College Possible group and the students in the comparison group once they were no longer enrolled at the institution where they began their first year of college. Although the SEP specified that College Possible would access data on college enrollment and graduation from the National Student Clearinghouse for students who were no longer enrolled at their original institution, this was not possible because they did not have access to data for students in the comparison group, thus, this critical component of the study design could not be completed.

Interpretation of the Implementation Evaluation Results

The purpose of the implementation evaluation was to measure the program's fidelity of implementation and identify areas where the program could be strengthened. Some of the implementation data also measured the intensity and content of the coaching that the students in the 2013 cohort received during each year of the study.

Results of the Year 4 implementation evaluation indicated that, on average, the students and coaches had 14.4 contacts during the year and 50% of those contacts were two-way contacts. A contact is classified as two-way when the student responds to an outreach attempt by the coach or a coach responds to a contact that the student initiated. The evaluation data indicated that contacts were much more likely to be two-way when the student initiated the contact (97%) than when the coach initiated the contact (45%). However, only 10% of the contacts that occurred during the year were initiated by students.

The total duration of contact between students and coaches during Year 4 ranged from 0 to 450 minutes, with 18% of the students having 0 minutes of contact (no contact) with their coach. For the subset of students who had at least a minute of contact with their coach during the year, the median duration of total contact during the year was 60 minutes, or one hour. This total includes minutes for

both two-way contacts and one-way contacts. During Year 4, the two most frequent topics the coaches addressed in their outreach with students were financial aid and registration.

The level of the fidelity of program implementation cannot be determined directly from these data because the program model emphasizes that coaches should address students' individual needs, which can vary widely based on factors such as where students are in their academic journey, whether they are currently enrolled in courses, and the kind of institution they are attending. The program model does not specify a minimum number of coach-student contacts that should occur during the year for each student, the total duration of these contacts, or the percentage of contacts that should be two-way. Although College Possible does place a higher value on a two-way contact than a one-way contact because a two-way contact allows the coach an opportunity to coach their students. As the program model has evolved over the course of the four-year evaluation, the program has identified other measures of the coaching that occurs in order to monitor the program's fidelity of implementation. For example, as described earlier in this report, beginning in fall 2016 the program leaders generated weekly reports to monitor coaches' effectiveness at successfully reaching and coaching their enrolled and unenrolled students during the appropriate quarterly campaign(s) and the coaches' use of voice-to-voice communication methods. Programmatic goals vary based on the timing of the quarterly campaign and whether a student is enrolled or unenrolled. However, the SIF implementation evaluation was not designed to measure these distinctions in the coaches' activities.

It is not surprising that the percentage of two-way contacts was much higher when the student initiated contact compared to when the coach initiated contact because when a student initiates contact the student has already identified a need for coaching and will therefore be likely to follow-through and interact with the coach when the coach responds to the students' outreach. In contrast, when a coach initiates a contact, a student may perceive that they do not have a need for any interaction with their coach at that time. Because the coaches are responsible for reaching out to all of the students in their portfolio on a regular basis, as well as responding to outreach initiated by students, the coach-initiated outreach may sometimes occur when a student has not identified a need for coaching or a need for coaching on the topic the coach intends to address in a contact.

Although we cannot directly compare the intensity of coaching students received in each year of the program because of changes in how the coaches recorded the data—for example, in Year 4 the coaches recorded all contacts with students and in previous years they had recorded weekly contact with students—it may be helpful nonetheless to review the implementation data from each of the four years of the study to understand the level of coaching received by the students over the course of the four year study. Program staff may also find the comparisons useful for exploring how the level of coaching received by the students could be related to the evolution of the program over this time period.

As noted earlier, the implementation evaluation included three variables to measure the intensity of coaching: the number of contacts between a student and their coach, the total duration (in minutes) of coach-student contact for each student during the year, and the percent of contacts for each student that were two-way contacts. As shown in Table 5:

- The average number of contacts per student is fairly consistent across the four years, even though in Year 4 the coaches switched to recording all contacts rather than weekly contacts, as they had done in previous years.

- From Year 2 to Year 4, the maximum number of contacts received by 75% of the students increased from 14 to 21 contacts. Because the average number of contacts is affected by extreme values, this result is likely a better indicator of changes over time in the number of contacts each student had with their coach.
- The percentage of students who had 0 minutes of contact (no contact) with their coach during the year increased from 0% in Year 1 to 18% in Year 4. This increase could be due to several factors, such as: an increase in the number of students who have either stopped out or dropped out of college and thus may be reluctant to respond to their coaches' outreach, a decrease in the number of students who perceive a need to respond to their coaches' outreach as the student progresses through college, or an increase in the number of students for whom the coaches no longer have accurate contact information.
- The percentage of coach-student contacts that were two-way varies widely across the four years, from 50% in year 4 and 55% in year 1 to a high of 96% in year 2.
- Data on the topics the coaches addressed in their contact with students was available for Years 2-4. Although there were some small variations from year to year in terms of the percentage of students whose coaches included a given topic in their contact with the students, across the 3 years at least 60% of the students received coaching that included the following three topics: financial aid, registration, and academics. This is consistent with the program model developed by College Possible.

Table 5

Intensity of Coach-Student Contact by Year

	Year 1	Year 2	Year 3	Year 4 ¹⁹
Total number of contacts made by all coaches	n/a ²⁰	1,739	1,980	2,260
Number of contacts per student				
--average	13.7	11.1	12.5	14.4
--standard deviation	n/a	6.8	6.7	10.0
--range	2-31	1-30	1-30	1-63
--maximum number of contacts received by 75% of the students	n/a	14	27	21
Total duration of coach-student contacts each year (in minutes)				
--average	n/a ²¹	25	98	60
--standard deviation	n/a	30.6	144.6	84.2
--median	140	26.4	154.6	73.8
--range	7 - 625	5 – 150	1 - 800	5 - 450
--percent of students with 0 minutes	0%	20%	10%	18%
Percent of contacts that were two-way	55%	96%	70%	50%

In addition to implementation data from the coaching records at College Possible, the results of the focus groups with coaches and the results of the observation checklist completed by the College Possible staff who supervise the coaches also provided information about the fidelity of program implementation. The results of coach observation checklists show that overall, coaches are implementing the 12 quality coaching practices as defined by College Possible. This indicates there was strong fidelity of implementation in this area of the program model.

The results of the coach focus groups indicated that coaches felt most prepared to provide resources to students when the students were completing their financial aid applications. They attributed their preparation primarily to their own previous experiences rather than to the training provided by College Possible. The coaches indicated that the knowledge they had gained through their previous experiences was especially important to have at the beginning of their year of coaching because this topic and others

¹⁹ In contrast to previous years when the coaches reported their weekly contacts with students, in Year 4 of the study the coaches recorded all contacts with students.

²⁰ This figure is not available due to differences in how the coaches recorded the data in Year 1 of the study.

²¹ This figure is not available due to differences in how the coaches recorded the data in Year 1 of the study.

were not addressed in the College Possible training until later in the year. The coaches also offered recommendations on how College Possible's training and ongoing supervision for coaches could be strengthened to better prepare the coaches to provide quality coaching to College Possible students. These suggestions are addressed in the final section of this report.

Limitations of the Implementation Evaluation

There are several limitations for the implementation evaluation that should be considered when interpreting the evaluation results. First, caution is recommended when interpreting the results that are based on data from the coach observation checklist because the data represent only some of the interactions the coaches had with students. Although it would not be feasible for the supervisors to observe every interaction the coaches have with students, it is possible that these data, which were based on observations of a subset of the coaches' interactions with students, do not adequately reflect the whole of the coaches' interactions with students.

Caution is also recommended when interpreting the focus group results. Because the results are based on data from only 25 of the coaches who were responsible for providing coaching to students in the study during Year 4, caution is needed when generalizing these results to all of the coaches who worked with these students. Furthermore, because the coaches who participated in the focus groups were responsible for other students beyond the students in this study, some of their remarks may have been based on experiences with students who were not part of this study.

Finally, the value of the implementation evaluation results as an indicator of the level of fidelity of program implementation is limited because many of the measures in the implementation evaluation, particularly the data drawn from the coaching records, are not directly aligned with the current program model. As a result, the primary value of data from measures such as the intensity and content of the coaching is as a description of the level of coaching the students received.

Conclusions and Recommendations

This longitudinal evaluation was designed to provide a moderate level of evidence through the use of a quasi-experimental design to examine the impact of College Possible's college program on college persistence and graduation. Specifically, the evaluation addressed the following confirmatory evaluation questions:

- What is the difference in rates of college persistence between program participants and non-participants?
- What is the difference in rates of college graduation between program participants and non-participants?

The evaluation began with a cohort of students who entered college in fall 2013. Impact evaluation results in each year of the study indicated there was no effect of the college program on students' persistence in college, as measured by retention into the next academic year, cumulative GPA, or cumulative credits earned.

In the final year of the study we added two later cohorts of students (a 2014 cohort and a 2015 cohort) to determine the impact of the program on persistence in college for students' first and second years of college. However, although the results were based on a much larger sample of students, the results of the impact analyses for the combined cohorts show no statistically significant effect of College Possible on any outcome variable. The purpose of combining cohorts was to increase statistical power, with the idea that previous non-significant findings were the result of the previous studies being statistically under-powered. However, because we did not find evidence of an impact of College Possible on the study outcomes even with the increase in statistical power, this suggests there may be other explanations for the lack of a statistically significant effects. Because these analyses were limited to outcomes in year 1 and year 2, future research should examine the effects of College Possible on year 3 and year 4 outcomes with a larger sample size.

In contrast, the evaluation results for the 2013 cohort of students indicated that the college program had a positive effect on the four-year graduation rate. College Possible students graduated at a greater rate by the end of the fourth year of college than students in the comparison group. There were no significant differences, however, in the graduation rate at the end of the second year of college for students in the larger group of combined cohorts.

In conclusion, the results of this impact evaluation provide moderate evidence for the effect of College Possible's college program on students' rate of graduation at the end of the fourth year of college. However, the results do not provide moderate evidence for the effect of the college program on students' persistence in college, as measured by retention into the next academic year, cumulative GPA, or cumulative credits earned.

Recommendations

Although this report concludes CAREI's external evaluation of College Possible's college program, there are several areas of research that would be beneficial for College Possible and/or other researchers to pursue to increase understanding of how the college program may impact students' persistence in college and graduation from college:

1. Future studies should examine credits earned in more detail than was feasible in this study to see if College Possible students are less likely than other students to take credits unrelated to the degree they are seeking, and therefore possibly graduate faster. As discussed earlier, the discrepant results between graduation rates and average GPAs may be due to the fact that students do not need to reach a particular GPA threshold to graduate from college. However, because students do need to reach a particular credit threshold to graduate the discrepant results between graduation rates and cumulative credits earned is less easily understood and therefore an area for future research.
2. Because impact data were only available at the time of this report for the 2014 and 2015 cohorts' first and second years of college, the analyses of impact data for the combined cohorts were limited to students' first two years of college. We strongly recommend that College Possible identify internal resources to continue this component of the study to examine the effects of College Possible on year 3 and year 4 outcomes with this existing larger sample size of students. Further, extending the study of the combined cohorts to years 5 and 6 of college would provide a more complete picture of how the college program effects students' persistence in college and graduation from college.

3. In future research College Possible should consider making a research request to the Minnesota State Longitudinal Education Data System so that impact data on students who transfer to other colleges can be included in the sample. Currently these data are only available to College Possible for students who are participating in their program.

The results of the implementation evaluation generated several recommendations for how the college program might be strengthened. Given how central the quality of the coaching provided by the college coaches is in the program's model for supporting College Possible's students to succeed in college, the following recommendations for training and supervision of the coaches, which are drawn from the focus groups with coaches, are the most critical for College Possible to attend to:

4. Increase the coaches' understanding of College Possible's expectations for the coaches' role in the college program, specifically regarding the emphasis on meeting College Possible benchmarks.
5. Prepare coaches to better meet the College Possible benchmarks when some portfolios might include significant numbers of students who are unresponsive or more difficult to engage.
6. Prepare coaches to develop a meaningful relationship with students, which the coaches believe is critical for the effectiveness of their coaching.
7. Prepare coaches on how they can become familiar with the resources available to students at each institution.
8. Prepare coaches to support students attending community colleges.

References

Dehejia, R.H. & Wahba, S. (2002). Propensity score-matching methods for nonexperimental causal studies. *Review of Economics and Statistics*, 84 (1), 151-161.

APPENDIX A: BASELINE EQUIVALENCY TABLES

Table 1

College Possible Baseline Equivalency for Cohort 2013 Between Colleges¹

Independent Variables	Estimate	Standard Error	t-value	p-value
Intercept	-1.27	3.84	-0.33	0.74
Male	0.16	0.25	0.62	0.54
Age	0.04	0.20	0.22	0.83
High School GPA	0.06	0.21	0.31	0.76
PELL Eligible	0.24	0.73	0.33	0.74
FirstGen	0.00	0.28	0.02	0.99
Race/Ethnicity ²				
Black	-0.01	0.31	-0.04	0.97
Hispanic	-0.30	0.44	-0.69	0.49
White	0.05	0.50	0.09	0.93
Other Non-White	-0.14	0.60	-0.23	0.81

¹ The dependent variable is an indicator variable denoting College Possible or Comparison group and the small log-odds ratios and high p-values on the common covariates across colleges imply that there are no differences between groups. These covariates are the same as those used in the impact analysis.

² Asian is the reference category for Race/Ethnicity.

Table 2
College Possible Baseline Equivalency for Cohort 2013 Between Colleges with Standardized Mean Differences¹

Covariates	Differences Before Matching	Differences After Matching
Age	0.037	0.031
First Generation No	0.553	0.015
First Generation Yes	0.513	<0.001
First Generation Missing	0.064	0.028
Gender Female	0.145	0.064
Gender Male	0.145	0.064
High School GPA	0.430	0.077
High School GPA Missing	0.388	0.092
PELL Eligible No	0.847	0.072
PELL Eligible Yes	0.781	0.088
PELL Eligible Missing	0.012	0.253
Race/Ethnicity Asian	0.470	0.087
Race/Ethnicity Black	0.086	0.015
Race/Ethnicity Hispanic	0.053	0.020
Race/Ethnicity Other	0.118	0.061
Race/Ethnicity White	0.700	0.047
Race/Ethnicity Unknown	0.106 $\sqrt{\frac{SD_T^2 + SD_C^2}{2}}$	0.029

¹ A pooled standard deviation of the form $\sqrt{\frac{SD_T^2 + SD_C^2}{2}}$, where SD_T is the standard deviation of the treatment group (i.e., College Possible) and SD_C is the standard deviation of the comparison group was calculated for each covariate over the initial sample. As further suggested by Rosenbaum (2010), this pooled standard deviation calculated before matching was also used to standardize the mean differences after matching.

Table 3
College Possible Baseline Equivalency for Cohorts 2014-2015 Between Colleges¹

Independent Variables	Estimate	Standard Error	t-value	p-value
Intercept	-1.39	3.30	-0.42	0.67
Male	-0.29	0.22	-1.29	0.20
Age	0.09	0.18	0.52	0.60
High School GPA	0.00	0.21	-0.02	0.98
PELL Eligible	0.18	0.39	0.46	0.65
FirstGen	0.24	0.26	0.94	0.35
Race/Ethnicity ²				
Black	-0.14	0.26	-0.55	0.58
Hispanic	0.07	0.45	0.16	0.87
White	0.15	0.58	0.25	0.80
Other Non-White	-0.27	0.44	-0.62	0.53
Cohort 2015 ³	0.11	0.22	0.51	0.61

¹ The dependent variable is an indicator variable denoting College Possible or Comparison group and the small log-odds ratios and high p-values on the common covariates across colleges imply that there are no differences between groups. These covariates are the same as those used in the impact analysis.

² Asian is the reference category for Race/Ethnicity.

³ Cohort 2014 is the reference variable.

Table 4

College Possible Baseline Equivalency for Cohorts 2014-2015 Between Colleges with Standardized Mean Differences¹

Covariates	Differences Before Matching	Differences After Matching
Age	0.068	0.028
First Generation No	0.810	0.161
First Generation Yes	0.745	0.168
First Generation Missing	0.093	0.035
Gender Female	0.230	0.035
Gender Male	0.227	0.035
High School GPA	0.433	0.040
High School GPA Missing	0.457	0.031
PELL Eligible No	0.601	0.101
PELL Eligible Yes	0.638	0.105
PELL Eligible Missing	0.009	0.029
Race/Ethnicity Asian	0.631	0.054
Race/Ethnicity Black	<0.001	0.013
Race/Ethnicity Hispanic	0.076	0.029
Race/Ethnicity Other	0.010	0.017
Race/Ethnicity White	0.760	0.035
Race/Ethnicity Unknown	0.062 $\sqrt{\frac{SD_T^2 + SD_C^2}{2}}$	0.029

¹ A pooled standard deviation of the form $\frac{SD_T^2 + SD_C^2}{2}$, where SD_T is the standard deviation of the treatment group (i.e., College Possible) and SD_C is the standard deviation of the comparison group was calculated for each covariate over the initial sample. As further suggested by Rosenbaum (2010), this pooled standard deviation calculated before matching was also used to standardize the mean differences after matching.

Table 5

Percentage of Students Matched in Each Group By College¹

Group	College A	College B	College C	College D	College E	College F	All Colleges
Cohort 2013							
<i>College Possible</i>							
Initial N	48	23	12	34	18	25	160
Percent Matched	100%	100%	100%	100%	100%	100%	100%
<i>Comparison</i>							
Initial N	318	196	128	53	24	38	757
Percent Matched	15%	12%	9%	64%	75%	66%	21%
Cohorts 2014-2015							
<i>College Possible</i>							
Initial N	143	19	33	92	23	61	371
Percent Matched	99%	63%	85%	100%	74%	97%	94%
<i>Comparison</i>							
Initial N	559	476	243	152	62	75	1567
Percent Matched	14%	2%	10%	38%	18%	41%	14%

¹ All matching took place within colleges separately.

APPENDIX B: Focus Group Questions for College Coaches

1. Please introduce yourself by your first name. Then, please tell us
 - how long you have been a college coach,
 - about how many students you had this past year, and
 - an example of a student interaction that you found especially rewarding and why/how it was rewarding.

2. Looking back over your coaching experiences this year, in which area(s) of your students' lives—either inside or outside of academics—did you feel most prepared to provide resources?
 - 2a. What helped you feel most prepared?

3. Looking back over your coaching experiences this year, in which area(s) of your students' lives—either inside or outside of academics—did you feel least prepared to provide resources?
 - 3a. What preparation or on-going support from College Possible might have helped you feel more prepared?

4. Were there any curriculum topics that you found to be especially useful?
 - 4a. If yes, which topic or topic(s) and what was it about the curriculum that made it useful?

5. Do you have any suggestions for additional curriculum areas that would be useful to you in supporting students?
 - 5a. If yes, what areas?

6. Is there something that you know or understand now about being an effective college coach that you wish you would have known or understood back when you first started coaching?
 - 6a. If yes, please tell us what that is and how it would have helped you to be a more effective coach.

 - 6b. What suggestions do you have for how College Possible could provide that knowledge/understanding to new college coaches?

7. Is there anything else you would like to tell me about how College Possible could improve the preparation and on-going support of college coaches like you?

APPENDIX C: IMPACT TABLES FOR 2013 COHORT

Table 1
College Possible Effects on Cumulative Spring 2017 GPA (N = 153¹)

Independent Variables	Estimate	Standard Error	t-value	p-value
Intercept	0.685	1.300	0.526	0.599
College Possible	-0.018	0.069	-0.256	0.799
Male	-0.042	0.076	-0.550	0.583
Age	0.050	0.072	0.699	0.486
High School GPA	0.432	0.093	4.667	0.000***
PELL Eligible	-0.252	0.190	-1.323	0.188
FirstGen	0.097	0.090	1.083	0.281
Race/Ethnicity ²				
Black	0.058	0.092	0.634	0.527
Hispanic	-0.055	0.133	-0.409	0.683
White	0.079	0.152	0.518	0.605
Other Non-White	-0.168	0.153	-1.103	0.272
Campus Site ³				
College B	-0.103	0.161	-0.635	0.527
College C	0.328	0.182	1.801	0.074
College D	-0.023	0.134	-0.174	0.862
College E	0.325	0.173	1.879	0.062
College F	0.265	0.147	1.798	0.074

¹ There were initially 175 students who had activity in Year 4 and 11 of these students are missing at least one covariate yielding $N = 164$. A t-test for these 11 missing students (6 College Possible and 5 Comparison students) on Cumulative GPA was found to be non-significant. The other 11 students who were missing Cumulative GPA for Year 4 also consisted of 6 College Possible students and 5 Comparison students.

² Asian is the reference category for Race/Ethnicity.

³ College A is the reference category for Campus Site.

Table 2
College Possible Effects on Cumulative Spring 2017 GPA, with Student Participation in Other College Success Programs (N = 121¹)

Independent Variables	Estimate	Standard Error	t-value	p-value
Intercept	0.789	1.515	0.521	0.603
College Possible	-0.043	0.080	-0.534	0.594
Male	0.045	0.094	0.481	0.631
Age	0.030	0.082	0.369	0.713
High School GPA	0.463	0.113	4.098	0.000***
PELL Eligible	-0.256	0.298	-0.859	0.393
FirstGen	0.069	0.108	0.639	0.524
Race/Ethnicity ²				
Black	0.117	0.102	1.147	0.254
Hispanic	-0.004	0.141	-0.030	0.976
White	0.011	0.228	0.050	0.961
Other Non-White	-0.176	0.190	-0.929	0.355
Campus Site ³				
College B	-0.018	0.198	-0.092	0.927
College C	0.460	0.228	2.021	0.046*
College E	0.478	0.236	2.025	0.045*
College F	0.415	0.193	2.153	0.034*
Other Programs	0.160	0.123	1.305	0.195

¹ There were initially 139 students who had activity in Year 4 and who did not enroll in College D. Eleven of these students are missing at least one covariate yielding $N = 128$. A t-test for these 11 missing students (6 College Possible and 5 Comparison students) on Cumulative GPA was found to be non-significant. The other 7 students who were missing Cumulative GPA for Year 4 consisted of 3 College Possible students and 4 Comparison students.

² Asian is the reference category for Race/Ethnicity.

³ College A is the reference category for Campus Site and College D ($N = 36$) is missing information on the other college success programs.

Table 3
College Possible Effects on Cumulative Credits Spring 2017 (N = 153¹)

Independent Variables	Estimate	Standard Error	t-value	p-value
Intercept	0.723	0.437	1.654	0.100
College Possible	0.016	0.023	0.686	0.494
Male	0.010	0.026	0.387	0.699
Age	0.001	0.024	0.053	0.958
High School GPA	0.067	0.031	2.146	0.034*
PELL Eligible	-0.058	0.064	-0.907	0.366
FirstGen	0.016	0.030	0.518	0.605
Race/Ethnicity ²				
Black	-0.049	0.031	-1.591	0.114
Hispanic	0.028	0.045	0.631	0.529
White	0.017	0.051	0.335	0.738
Other Non-White	-0.099	0.051	-1.934	0.055
Campus Site ³				
College B	-0.005	0.054	-0.089	0.929
College C	0.036	0.061	0.596	0.552
College D	-0.128	0.045	-2.851	0.005**
College E	-0.009	0.058	-0.155	0.877
College F	-0.350	0.049	-7.068	0.000***

¹ There were initially 175 students who had activity in Year 4 and 11 of these students are missing at least one covariate yielding $N = 164$. A t-test for these 11 missing students (6 College Possible and 5 Comparison students) on Cumulative Credits was found to be non-significant. The other 11 students who were missing Cumulative Credits for Year 4 consisted of 6 College Possible students and 5 Comparison students.

² Asian is the reference category for Race/Ethnicity.

³ College A is the reference category for Campus Site.

Table 4

College Possible Effects on Cumulative Credits Spring 2017, with Student Participation in Other College Success Programs (N = 121¹)

Independent Variables	Estimate	Standard Error	t-value	p-value
Intercept	0.796	0.494	1.611	0.110
College Possible	0.011	0.026	0.425	0.672
Male	0.039	0.031	1.279	0.204
Age	-0.004	0.027	-0.154	0.878
High School GPA	0.055	0.037	1.484	0.141
PELL Eligible	-0.051	0.097	-0.526	0.600
FirstGen	-0.002	0.035	-0.068	0.946
Race/Ethnicity ²				
Black	-0.020	0.033	-0.611	0.543
Hispanic	0.051	0.046	1.110	0.270
White	0.043	0.074	0.575	0.566
Other Non-White	-0.124	0.062	-2.008	0.047*
Campus Site ³				
College B	-0.005	0.064	-0.073	0.942
College C	0.073	0.074	0.983	0.328
College E	0.051	0.077	0.663	0.509
College F	-0.304	0.063	-4.841	0.000***
Other Programs	0.073	0.040	1.812	0.073

¹ There were initially 139 students who had activity in Year 4 and who did not enroll in College D. Eleven of these students are missing at least one covariate yielding $N = 128$. A t-test for these 11 missing students (6 College Possible and 5 Comparison students) on Cumulative Credits was found to be non-significant. The other 7 students who were missing Cumulative credits for Year 4 consisted of 3 College Possible students and 4 Comparison students.

² Asian is the reference category for Race/Ethnicity.

³ College A is the reference category for Campus Site and College D ($N = 36$) is missing information on the other college success programs.

Table 5
College Possible Effects on Retention for Fall 2017 (N = 127¹)

Independent Variables	Estimate²	Standard Error²	t-value	p-value
Intercept	0.000	0.011	-0.007	0.995
College Possible	0.627	0.472	-0.620	0.536
Male	0.805	0.676	-0.258	0.796
Age	5.966	5.475	1.946	0.052
High School GPA	0.844	0.729	-0.197	0.844
PELL Eligible	0.000	0.000	-0.009	0.993
FirstGen	5.843	5.319	1.939	0.052
Race/Ethnicity ³				
Black	1.223	1.344	0.183	0.855
Hispanic	0.227	0.257	-1.308	0.191
White	0.560	1.042	-0.311	0.755
Other Non-White	0.079	0.111	-1.797	0.072
Campus Site ⁴				
College B	0.004	0.007	-3.429	0.001***
College C	0.032	0.045	-2.484	0.013*
College E	0.078	0.125	-1.589	0.112
College F	0.858	1.331	-0.098	0.922

¹ There were initially 139 students who had activity in Year 4 and who did not enroll in College D. Eleven of these students are missing at least one covariate yielding $N = 128$. Several non-parametric tests for these 11 missing students (6 College Possible and 5 Comparison students) on Retention for Fall 2017 was found to be non-significant. The only other student who was missing on Retention for Fall 2017 was a Comparison student.

² Both the estimate and standard errors are reported as odds-ratios (OR), because relative risk-ratio (RR) is a probability measure which varies for different subsets of the data. However, the centered case ($p = 0.5$) is the most generally representative of the entire probability range and provides an average of all the RRs for a given odds-ratio. The general formula is $RR \neq \frac{QR}{1 - p + p * OR}$ for a given probability, p but simplifies to $RR = OR$ when $p = 0.5$ (e.g., Liberman, 2005).

³ Asian is the reference category for Race/Ethnicity.

⁴ College A is the reference category for Campus Site and College D ($N = 36$) is missing information on Fall 2017 Retention for all College Possible students so they are omitted from this analysis.

Table 6
College Possible Effects on Retention for Fall 2017, with Student Participation in Other College Success Programs (N = 127¹)

Independent Variables	Estimate²	Standard Error²	t-value	p-value
Intercept	0.000	0.002	-0.008	0.994
College Possible	0.555	0.428	-0.764	0.445
Male	0.798	0.686	-0.262	0.793
Age	7.007	6.559	2.080	0.037*
High School GPA	0.880	0.777	-0.144	0.885
PELL Eligible	0.000	0.000	-0.010	0.992
FirstGen	5.947	5.509	1.925	0.054
Race/Ethnicity ³				
Black	1.277	1.436	0.217	0.828
Hispanic	0.201	0.228	-1.414	0.157
White	0.400	0.749	-0.489	0.625
Other Non-White	0.087	0.131	-1.631	0.103
Campus Site ⁴				
College B	0.003	0.004	-3.358	0.008***
College C	0.014	0.024	-2.438	0.015*
College E	0.027	0.056	-1.739	0.082
College F	0.358	0.682	-0.539	0.590
Other Programs	0.366	0.444	-0.829	0.407

¹ There were initially 139 students who had activity in Year 4 and who did not enroll in College D. Eleven of these students are missing at least one covariate yielding $N = 128$. Several non-parametric tests for these 11 missing students (6 College Possible and 5 Comparison students) on Retention for Fall 2017 was found to be non-significant. The only other student who was missing on Retention for Fall 2017 was a Comparison student.

² Both the estimate and standard errors are reported as odds-ratios (OR), because relative risk-ratio (RR) is a probability measure which varies for different subsets of the data. However, the centered case ($p = 0.5$) is the most generally representative of the entire probability range and provides an average of all the RRs for a given odds-ratio. The general formula is $RR = \frac{OR}{1 - p + p * OR}$ for a given probability, p but simplifies to $RR = OR$ when $p = 0.5$ (e.g., Liberman, 2005).

³ Asian is the reference category for Race/Ethnicity.

⁴ College A is the reference category for Campus Site and College D is missing information on Fall 2017 for all College Possible students so is omitted from this analysis.

Table 7
College Possible Effects on Graduation through Year 4 (N = 166¹)

Independent Variables	Estimate ²	Standard Error ²	t-value	p-value
Intercept	0.003	0.020	-0.789	0.430
College Possible ³	3.043	1.274	2.658	0.008**
Male	1.077	0.469	0.170	0.865
Age	1.037	0.422	0.088	0.929
High School GPA	7.003	3.990	3.416	0.001***
PELL Eligible	0.044	0.063	-2.207	0.027*
FirstGen	1.298	0.694	0.489	0.625
Race/Ethnicity ⁴				
Black	0.600	0.320	-0.960	0.337
Hispanic	0.835	0.604	-0.250	0.803
White	1.247	1.237	0.223	0.824
Other Non-White	0.147	0.181	-1.559	0.119
Campus Site ⁵				
College B	25.374	25.154	3.262	0.001***
College C	21.043	22.282	2.877	0.004**
College D	0.314	0.248	-1.464	0.143
College E	11.443	12.255	2.276	0.023*
College F	0.777	0.723	-0.271	0.786

¹ This sample includes all students in Cohort 2013 even if they had graduated in prior years. There are 12 students out of 178 students missing on at least one covariate. Several non-parametric tests found this effect to be significant in favor of College Possible students which provides more evidence that College Possible may have had a positive impact on 4-year graduation.

² Both the estimate and standard errors are reported as odds-ratios (OR), because relative risk-ratio (RR) is a probability measure which varies for different subsets of the data. However, the centered case ($p = 0.5$) is the most generally representative of the entire probability range and provides an average of all the RRs for a given odds-ratio. The general formula is $RR = \frac{OR}{1 - p + p * OR}$ for a given probability, p but simplifies to $RR = OR$ when $p = 0.5$ (e.g., Liberman, 2005).

³ This suggests that the odds of a College possible student graduating after 4 years is on average just over 3 times the odds of a student not in College Possible. In terms of the RR and probabilities, the centered case yields $RR = \frac{3.043}{1 - 0.5 + 0.5 * 3.043} \approx 1.74$. This implies that a student in College Possible is on average 1.74 times more likely to graduate after 4 years than a student in the comparison group.

⁴ Asian is the reference category for Race/Ethnicity.

⁵ College A is the reference category for Campus Site.

Table 8
College Possible Effects on Graduation through Year 4, with Student Participation in Other College Success Programs (N = 166¹)

Independent Variables	Estimate²	Standard Error²	t-value	p-value
Intercept	0.002	0.017	-0.805	0.421
College Possible ³	3.066	1.290	2.662	0.008**
Male	1.089	0.478	0.194	0.846
Age	1.034	0.421	0.083	0.934
High School GPA	7.225	4.286	3.333	0.001***
PELL Eligible	0.043	0.061	-2.208	0.027*
FirstGen	1.296	0.693	0.484	0.628
Race/Ethnicity ⁴				
Black	0.605	0.323	-0.942	0.346
Hispanic	0.829	0.601	-0.259	0.795
White	1.250	1.247	0.223	0.823
Other Non-White	0.144	0.178	-1.566	0.117
Campus Site ⁵				
College B	27.127	28.652	3.125	0.002**
College C	23.466	28.176	2.628	0.009**
College D	0.344	0.315	-1.164	0.244
College E	13.084	16.750	2.009	0.045*
College F	0.843	0.860	-0.168	0.867
Other Programs	1.117	0.640	0.193	0.847

¹ This sample includes all students in Cohort 2013 even if they had graduated in prior years. There are 12 students out of 178 students missing on at least one covariate. Several non-parametric tests found this effect to be significant in favor of College Possible students which provides more evidence that College Possible may have had a positive impact on 4-year graduation.

² Both the estimate and standard errors are reported as odds-ratios (OR), because relative risk-ratio (RR) is a probability measure which varies for different subsets of the data. However, the centered case ($p = 0.5$) is the most generally representative of the entire probability range and provides an average of all the RRs for a given odds-ratio. The general formula is $RR = \frac{QR}{(1 - p + p * OR)}$ for a given probability, p but simplifies to $RR = OR$ when $p = 0.5$ (e.g., Liberman, 2005).

³ This suggests that the odds of a College possible student being retained is on average just over 3 times the odds of a student not in College Possible. In terms of the RR and probabilities, the centered case yields $RR = 3.066 \approx 1.75$. This implies that a student in College Possible is on average 1.75 times more likely to be retained than a student in the comparison group.

⁴ Asian is the reference category for Race/Ethnicity.

⁵ College A is the reference category for Campus Site.

Table 9

College Possible Effects on Continuous Enrollment through Year 4 ($N = 131^1$)

Independent Variables	Estimate ²	Standard Error ²	t-value	p-value
Intercept	0.001	0.013	-0.626	0.531
College Possible	2.130	1.039	1.550	0.121
Male	0.702	0.375	-0.663	0.507
Age	1.615	0.956	0.810	0.418
High School GPA	0.893	0.556	-0.181	0.856
FirstGen	1.394	0.900	0.515	0.607
Race/Ethnicity ³				
Black	0.374	0.214	-1.721	0.085
Hispanic	1.218	0.917	0.262	0.794
White	1.408	1.365	0.353	0.724
Other Non-White	0.000	0.000	-0.013	0.990
Campus Site ⁴				
College B	0.060	0.062	-2.740	0.006**
College C	0.157	0.170	-1.716	0.086
College E	0.161	0.181	-1.623	0.105
College F	0.132	0.117	-2.287	0.022*

¹ This sample includes all students in Cohort 2013 even if they had graduated in prior years. PELL Eligibility is omitted as a covariate due to lack of variability both between and within groups. All three students who were not PELL eligible were all continuously enrolled ($N = 3$) which caused extremely high standard errors. In addition, there are 11 students out of 142 students missing on at least one covariate. Several non-parametric tests found this effect to be nonsignificant.

² Both the estimate and standard errors are reported as odds-ratios (OR), because relative risk-ratio (RR) is a probability measure which varies for different subsets of the data. However, the centered case ($p = 0.5$) is the most generally representative of the entire probability range and provides an average of all the RRs for a given odds-ratio. The general formula is $RR \equiv OR / (1 - p + p * OR)$ for a given probability, p but simplifies to $RR = OR$ when $p = 0.5$ (e.g., Liberman, 2005).

³ Asian is the reference category for Race/Ethnicity.

⁴ College A is the reference category for Campus Site and College D is missing information on Fall 2017 for all College Possible students so is omitted from this analysis.

Table 10
College Possible Effects on Continuous Enrollment through Year 4, with Student Participation in Other College Success Programs (N = 131¹)

Independent Variables	Estimate ²	Standard Error ²	t-value	p-value
Intercept	0.021	0.228	-0.353	0.724
College Possible	2.010	1.034	1.357	0.175
Male	0.634	0.355	-0.814	0.416
Age	1.593	0.969	0.766	0.444
High School GPA	0.745	0.507	-0.432	0.665
FirstGen	1.615	1.064	0.727	0.467
Race/Ethnicity ³				
Black	0.390	0.236	-1.558	0.119
Hispanic	1.542	1.266	0.527	0.598
White	1.805	1.933	0.552	0.581
Other Non-White	0.000	0.000	-0.013	0.990
Campus Site ⁴				
College B	0.023	0.027	-3.132	0.002**
College C	0.024	0.032	-2.780	0.005**
College E	0.020	0.028	-2.767	0.006**
College F	0.046	0.050	-2.844	0.004**
Other Programs	0.123	0.098	-2.638	0.008**

¹ This sample includes all students in Cohort 2013 even if they had graduated in prior years. PELL Eligibility is omitted as a covariate due to lack of variability both between and within groups. All three students who were not PELL eligible were all continuously enrolled ($N = 3$) which caused extremely high standard errors. In addition, there are 11 students out of 142 students missing on at least one covariate. Several non-parametric tests found this effect to be nonsignificant.

² Both the estimate and standard errors are reported as odds-ratios (OR), because relative risk-ratio (RR) is a probability measure which varies for different subsets of the data. However, the centered case ($p = 0.5$) is the most generally representative of the entire probability range and provides an average of all the RRs for a given odds-ratio. The general formula is $RR \equiv OR / (1 - p + p * OR)$ for a given probability, p but simplifies to $RR = OR$ when $p = 0.5$ (e.g., Liberman, 2005).

³ Asian is the reference category for Race/Ethnicity.

⁴ College A is the reference category for Campus Site and College D is missing information on Fall 2017 for all College Possible students so is omitted from this analysis.

APPENDIX D: IMPACT TABLES FOR COMBINED COHORTS

Table 1
College Possible Effects on Cumulative GPA after Year 1 of College (N = 591¹)

Independent Variables	Estimate	Standard Error	t-value	p-value
Intercept	0.748	0.967	0.773	0.440
College Possible	-0.018	0.060	-0.305	0.760
Male	-0.170	0.061	-2.771	0.006**
Age	0.026	0.052	0.492	0.623
High School GPA	0.556	0.074	7.556	0.000***
PELL Eligible	-0.200	0.129	-1.548	0.122
FirstGen	-0.068	0.071	-0.948	0.344
Race/Ethnicity ²				
Black	0.025	0.076	0.323	0.747
Hispanic	0.247	0.117	2.105	0.036*
White	-0.166	0.141	-1.174	0.241
Other Non-White	-0.171	0.133	-1.286	0.199
Campus Site ³				
College B	-0.158	0.145	-1.084	0.279
College C	0.021	0.135	0.159	0.874
College D	-0.290	0.100	-2.896	0.004**
College E	-0.022	0.151	-0.146	0.884
College F	0.163	0.108	1.500	0.134
Cohort ⁴				
Cohort 2014	0.056	0.078	0.710	0.478
Cohort 2015	0.019	0.075	0.251	0.802

¹ There were initially 881 students across three cohorts with 229 of these student missing on at least one covariate yielding $N = 652$. A t-test for these 229 missing students (140 College Possible and 89 Comparison students) on Cumulative GPA after Year 1 was found to be non-significant. The other 61 students who were missing Cumulative GPA for Year 1 consisted of 27 College Possible students and 34 Comparison students.

² Asian is the reference category for Race/Ethnicity.

³ College A is the reference Campus Site.

⁴ Cohort 2013 is the reference cohort.

Table 2

College Possible Effects on Cumulative GPA after Year 2 of College (N = 414¹)

Independent Variables	Estimate	Standard Error	t-value	p-value
Intercept	0.463	0.959	0.483	0.629
College Possible	0.008	0.056	0.140	0.888
Male	-0.105	0.057	-1.853	0.065
Age	0.046	0.053	0.860	0.390
High School GPA	0.503	0.069	7.308	0.000***
PELL Eligible	-0.128	0.115	-1.111	0.267
FirstGen	-0.070	0.067	-1.053	0.293
Race/Ethnicity ²				
Black	0.113	0.071	1.590	0.113
Hispanic	0.187	0.111	1.690	0.092
White	0.118	0.139	0.848	0.397
Other Non-White	-0.172	0.122	-1.406	0.160
Campus Site ³				
College B	-0.181	0.126	-1.441	0.150
College C	-0.010	0.113	-0.085	0.933
College D	-0.124	0.092	-1.353	0.177
College E	-0.022	0.296	-0.074	0.941
College F	0.104	0.107	0.967	0.334
Cohort ⁴				
Cohort 2014	-0.002	0.074	-0.028	0.978
Cohort 2015	0.011	0.075	0.146	0.884

¹ There were initially 881 students across three cohorts with 229 of these student missing on at least one covariate yielding $N = 652$. A t-test for these 229 missing students (140 College Possible and 89 Comparison students) on Cumulative GPA after Year 2 was found to be non-significant. The other 238 students who were missing Cumulative GPA for Year 2 consisted of 139 College Possible students and 99 Comparison students.

² Asian is the reference category for Race/Ethnicity.

³ College A is the reference Campus Site.

⁴ Cohort 2013 is the reference cohort.

Table 3

College Possible Effects on Cumulative GPA after Year 1 of College, with Student Participation in Other College Success Programs (N = 470¹)

Independent Variables	Estimate	Standard Error	t-value	p-value
Intercept	-0.731	1.200	-0.609	0.543
College Possible	-0.043	0.066	-0.652	0.515
Male	-0.203	0.068	-3.007	0.003**
Age	0.081	0.065	1.239	0.216
High School GPA	0.673	0.080	8.452	0.000***
PELL Eligible	-0.341	0.142	-2.397	0.017*
FirstGen	0.023	0.080	0.283	0.777
Race/Ethnicity ²				
Black	0.015	0.081	0.189	0.850
Hispanic	0.226	0.124	1.824	0.069
White	-0.110	0.148	-0.742	0.459
Other Non-White	-0.279	0.149	-1.873	0.062
Campus Site ³				
College B	0.004	0.149	0.024	0.981
College C	0.278	0.155	1.791	0.074
College D	-0.175	0.150	-1.168	0.243
College E	0.202	0.179	1.126	0.261
College F	0.325	0.124	2.626	0.009**
Cohort ⁴				
Cohort 2014	0.027	0.095	0.289	0.773
Cohort 2015	0.011	0.091	0.117	0.907
Other Programs	0.152	0.088	1.723	0.086

¹ There were initially 881 students across three cohorts with 229 of these student missing on at least one covariate yielding $N = 652$. A t-test for these 229 missing students (140 College Possible and 89 Comparison students) on Cumulative GPA after Year 1 was found to be non-significant. The other 182 students who were missing Cumulative GPA for Year 1 consisted of 103 College Possible students and 79 Comparison students.

² Asian is the reference category for Race/Ethnicity.

³ College A is the reference Campus Site.

⁴ Cohort 2013 is the reference cohort.

Table 4
College Possible Effects on Cumulative GPA after Year 2 of College, with Student Participation in Other College Success Programs (N = 332¹)

Independent Variables	Estimate	Standard Error	t-value	p-value
Intercept	-1.238	1.211	-1.022	0.307
College Possible	-0.007	0.065	-0.101	0.919
Male	-0.126	0.066	-1.912	0.057
Age	0.122	0.067	1.832	0.068
High School GPA	0.565	0.078	7.260	0.000***
PELL Eligible	-0.251	0.134	-1.874	0.062
FirstGen	-0.018	0.078	-0.229	0.819
Race/Ethnicity ²				
Black	0.106	0.079	1.354	0.177
Hispanic	0.229	0.124	1.854	0.065
White	0.251	0.156	1.607	0.109
Other Non-White	-0.156	0.144	-1.086	0.278
Campus Site ³				
College B	0.033	0.151	0.219	0.827
College C	0.249	0.144	1.730	0.085
College D	-0.086	0.169	-0.511	0.610
College E	0.065	0.326	0.199	0.843
College F	0.254	0.126	2.018	0.044*
Cohort ⁴				
Cohort 2014	-0.041	0.087	-0.470	0.639
Cohort 2015	-0.039	0.089	-0.442	0.659
Other Programs	0.216	0.093	2.336	0.020*

¹ There were initially 881 students across three cohorts with 229 of these student missing on at least one covariate yielding $N = 652$. A t-test for these 229 missing students (140 College Possible and 89 Comparison students) on Cumulative GPA after Year 2 was found to be non-significant. The other 320 students who were missing Cumulative GPA for Year 2 consisted of 190 College Possible students and 130 Comparison students.

² Asian is the reference category for Race/Ethnicity.

³ College A is the reference Campus Site.

⁴ Cohort 2013 is the reference cohort.

Table 5

College Possible Effects on Cumulative Credits after Year 1 of College (N = 593¹)

Independent Variables	Estimate	Standard Error	t-value	p-value
Intercept	0.119	0.120	0.992	0.322
College Possible	-0.005	0.007	-0.616	0.538
Male	-0.008	0.008	-0.985	0.325
Age	-0.001	0.007	-0.176	0.860
High School GPA	0.051	0.009	5.631	0.000***
PELL Eligible	0.008	0.016	0.507	0.613
FirstGen	-0.003	0.009	-0.334	0.739
Race/Ethnicity ²				
Black	0.014	0.009	1.461	0.145
Hispanic	0.041	0.015	2.810	0.005**
White	-0.010	0.018	-0.570	0.569
Other Non-White	0.002	0.017	0.147	0.883
Campus Site ³				
College B	-0.078	0.018	-4.344	0.000***
College C	0.020	0.017	1.218	0.224
College D	-0.085	0.012	-6.855	0.000***
College E	-0.037	0.019	-2.001	0.046*
College F	-0.063	0.013	-4.687	0.000***
Cohort ⁴				
Cohort 2014	0.032	0.010	3.315	0.001***
Cohort 2015	0.015	0.009	1.597	0.111

¹ There were initially 881 students across three cohorts with 229 of these student missing on at least one covariate yielding $N = 652$. A t-test for these 229 missing students (140 College Possible and 89 Comparison students) on Cumulative Credits after Year 1 was found to be non-significant. The other 59 students who were missing Cumulative Credits for Year 1 consisted of 26 College Possible students and 33 Comparison students.

² Asian is the reference category for Race/Ethnicity.

³ College A is the reference Campus Site.

⁴ Cohort 2013 is the reference cohort.

Table 6
College Possible Effects on Cumulative Credits after Year 2 of College (N = 415¹)

Independent Variables	Estimate	Standard Error	t-value	p-value
Intercept	0.293	0.294	0.996	0.320
College Possible	0.017	0.017	1.009	0.314
Male	0.007	0.017	0.408	0.683
Age	-0.008	0.016	-0.523	0.601
High School GPA	0.102	0.021	4.835	0.000***
PELL Eligible	-0.008	0.035	-0.219	0.827
FirstGen	0.030	0.020	1.469	0.143
Race/Ethnicity ²				
Black	0.030	0.022	1.394	0.164
Hispanic	0.040	0.034	1.172	0.242
White	0.088	0.043	2.067	0.039*
Other Non-White	-0.026	0.037	-0.701	0.484
Campus Site ³				
College B	0.125	0.038	3.251	0.001***
College C	0.109	0.035	3.160	0.002**
College D	-0.077	0.028	-2.731	
College E				0.512
College F	-0.033	0.033	-1.015	0.311
Cohort ⁴				
Cohort 2014	-0.031	0.023	-1.351	0.177
Cohort 2015	-0.046	0.023	-2.004	0.046*

¹ There were initially 881 students across three cohorts with 229 of these student missing on at least one covariate yielding $N = 652$. A t-test for these 229 missing students (140 College Possible and 89 Comparison students) on Cumulative Credits after Year 2 was found to be non-significant. The other 237 students who were missing Cumulative Credits for Year 2 consisted of 139 College Possible students and 98 Comparison students.

² Asian is the reference category for Race/Ethnicity.

³ College A is the reference Campus Site.

⁴ Cohort 2013 is the reference cohort.

Table 7
College Possible Effects on Cumulative Credits after Year 1 of College, with Student Participation in Other College Success Programs (N = 472¹)

Independent Variables	Estimate	Standard Error	t-value	p-value
Intercept	0.125	0.165	0.761	0.447
College Possible	-0.009	0.009	-1.003	0.317
Male	-0.006	0.009	-0.601	0.548
Age	-0.005	0.009	-0.506	0.613
High School GPA	0.061	0.011	5.627	0.000***
PELL Eligible	0.006	0.019	0.335	0.738
FirstGen	0.004	0.011	0.336	0.737
Race/Ethnicity ²				
Black	0.016	0.011	1.471	0.142
Hispanic	0.046	0.017	2.673	0.008**
White	-0.003	0.020	-0.167	0.868
Other Non-White	0.002	0.020	0.100	0.921
Campus Site ³				
College B	-0.065	0.020	-3.200	0.001***
College C	0.038	0.021	1.807	0.071
College D	-0.057	0.021	-2.797	0.005**
College E	-0.009	0.025	-0.386	0.700
College F	-0.051	0.017	-2.991	0.003**
Cohort ⁴				
Cohort 2014	0.041	0.013	3.189	0.002***
Cohort 2015	0.019	0.012	1.532	0.126
Other Programs	0.013	0.012	1.108	0.269

¹ There were initially 881 students across three cohorts with 229 of these student missing on at least one covariate yielding $N = 652$. A t-test for these 229 missing students (140 College Possible and 89 Comparison students) on Cumulative Credits after Year 1 was found to be non-significant. The other 180 students who were missing Cumulative Credits for Year 1 consisted of 102 College Possible students and 78 Comparison students.

² Asian is the reference category for Race/Ethnicity.

³ College A is the reference Campus Site.

⁴ Cohort 2013 is the reference cohort.

Table 8
College Possible Effects on Cumulative Credits after Year 2 of College, with Student Participation in Other College Success Programs (N = 333¹)

Independent Variables	Estimate	Standard Error	t-value	p-value
Intercept	-0.106	0.393	-0.270	0.788
College Possible	0.010	0.021	0.477	0.634
Male	0.002	0.021	0.112	0.911
Age	0.008	0.022	0.379	0.705
High School GPA	0.124	0.025	4.918	0.000***
PELL Eligible	-0.036	0.044	-0.828	0.408
FirstGen	0.046	0.025	1.811	0.071
Race/Ethnicity ²				
Black	0.027	0.025	1.067	0.287
Hispanic	0.044	0.040	1.085	0.279
White	0.116	0.051	2.283	0.023*
Other Non-White	-0.027	0.047	-0.583	0.561
Campus Site ³				
College B	0.183	0.048	3.791	0.000***
College C	0.178	0.047	3.821	0.000***
College D	-0.096	0.055	-1.742	0.082
College E	0.094	0.106	0.888	0.375
College F	0.013	0.041	0.320	0.749
Cohort ⁴				
Cohort 2014	-0.048	0.028	-1.697	0.091
Cohort 2015	-0.070	0.029	-2.433	0.016*
Other Programs	0.047	0.030	1.564	0.119

¹ There were initially 881 students across three cohorts with 229 of these student missing on at least one covariate yielding $N = 652$. A t-test for these 229 missing students (140 College Possible and 89 Comparison students) on Cumulative Credits after Year 2 was found to be non-significant. The other 319 students who were missing Cumulative Credits for Year 2 consisted of 190 College Possible students and 129 Comparison students.

² Asian is the reference category for Race/Ethnicity.

³ College A is the reference Campus Site.

⁴ Cohort 2013 is the reference cohort.

Table 9
College Possible Effects on Retention after Year 1 of College (N = 561¹)

Independent Variables	Estimate²	Standard Error²	t-value	p-value
Intercept	0.018	0.073	-0.998	0.318
College Possible	1.335	0.339	1.137	0.256
Male	0.881	0.216	-0.515	0.606
Age	1.428	0.308	1.655	0.098
High School GPA	1.701	0.468	1.930	0.054
PELL Eligible	0.596	0.261	-1.183	0.237
FirstGen	1.051	0.288	0.181	0.857
Race/Ethnicity ³				
Black	0.856	0.264	-0.505	0.614
Hispanic	0.586	0.251	-1.250	0.211
White	0.507	0.254	-1.355	0.175
Other Non-White	0.784	0.380	-0.502	0.615
Campus Site ⁴				
College B	0.189	0.123	-2.559	0.011*
College C	0.343	0.221	-1.662	0.097
College D	0.095	0.055	-4.034	0.000***
College E	0.054	0.036	-4.335	0.000***
College F	0.284	0.159	-2.249	0.025*
Cohort ⁵				
Cohort 2014	0.354	0.137	-2.682	0.007**
Cohort 2015	0.285	0.085	-4.223	0.000***

¹ There were initially 881 students across three cohorts with 229 of these student missing on at least one covariate yielding $N = 652$. Several non-parametric tests for these 229 missing students (140 College Possible and 89 Comparison students) on Spring retention for Year 1 was found to be non-significant. The other 91 students who were missing Spring retention for Year 1 consisted of 38 College Possible students and 53 Comparison students.

² Both the estimate and standard errors are reported as odds-ratios (OR), because relative risk-ratio (RR) is a probability measure which varies for different subsets of the data. However, the centered case ($p = 0.5$) is the most generally representative of the entire probability range and provides an average of all the RRs for a given odds-ratio. The general formula is $RR = \frac{QR}{1 - p + p * OR}$ for a given probability, p but simplifies to $RR = OR$ when $p = 0.5$ (e.g., Liberman, 2005).

³ Asian is the reference category for Race/Ethnicity.

⁴ College A is the reference Campus Site.

⁵ Cohort 2013 is the reference cohort.

Table 10
College Possible Effects on Retention after Year 2 of College (N = 513¹)

Independent Variables	Estimate²	Standard Error²	t-value	p-value
Intercept	0.009	0.035	-1.190	0.234
College Possible ³	1.486	0.306	1.925	0.054*
Male	0.671	0.143	-1.869	0.062
Age	1.268	0.276	1.091	0.275
High School GPA	2.002	0.488	2.847	0.004**
PELL Eligible	0.761	0.311	-0.667	0.505
FirstGen	1.155	0.287	0.580	0.562
Race/Ethnicity ⁴				
Black	0.643	0.167	-1.706	0.088
Hispanic	1.205	0.477	0.471	0.638
White	0.843	0.367	-0.391	0.696
Other Non-White	0.680	0.301	-0.873	0.383
Campus Site ⁵				
College B	0.410	0.190	-1.920	0.055
College C	0.281	0.123	-2.889	0.004**
College D	0.246	0.116	-2.985	0.003**
College E	0.145	0.075	-3.724	0.000***
College F	0.467	0.175	-2.028	0.043*
Cohort ⁶				
Cohort 2014	1.035	0.324	0.109	0.913
Cohort 2015	0.748	0.220	-0.989	0.323

¹ There were initially 881 students across three cohorts with 229 of these student missing on at least one covariate yielding $N = 652$. Several non-parametric tests for these 229 missing students (140 College Possible and 89 Comparison students) on Spring retention for Year 2 was found to be non-significant. The other 139 students who were missing Spring retention for Year 2 consisted of 86 College Possible students and 53 Comparison students.

² Both the estimate and standard errors are reported as odds-ratios (OR), because relative risk-ratio (RR) is a probability measure which varies for different subsets of the data. However, the centered case ($p = 0.5$) is the most generally representative of the entire probability range and provides an average of all the RRs for a given odds-ratio. The general formula is $RR = \frac{OR}{1 - p + p * OR}$ for a given probability, p but simplifies to $RR = OR$ when $p = 0.5$ (e.g., Liberman, 2005).

³ This suggests that the odds of a College possible student being retained is on average about 1.5 times the odds of a student not in College Possible. In terms of the RR and probabilities, the centered case yields $RR = 1.486 \approx 1.22$. This implies that a student in College Possible is on average 1.22 times more likely to be retained than a student in the comparison group.

⁴ Asian is the reference category for Race/Ethnicity.

⁵ College A is the reference Campus Site.

⁶ Cohort 2013 is the reference cohort.

Table 11

College Possible Effects on Retention after Year 1 of College, with Student Participation in Other College Success Programs (N = 513¹)

Independent Variables	Estimate²	Standard Error²	t-value	p-value
Intercept	0.000	0.001	-1.616	0.106
College Possible	1.312	0.342	1.041	0.298
Male	0.763	0.205	-1.010	0.313
Age	1.711	0.502	1.830	0.067
High School GPA	2.257	0.687	2.673	0.007**
PELL Eligible	0.603	0.287	-1.061	0.289
FirstGen	1.290	0.391	0.840	0.401
Race/Ethnicity ³				
Black	0.808	0.268	-0.643	0.520
Hispanic	0.580	0.273	-1.159	0.246
White	0.531	0.272	-1.236	0.217
Other Non-White	0.828	0.430	-0.364	0.716
Campus Site ⁴				
College B	0.275	0.187	-1.898	0.058
College C	0.567	0.410	-0.786	0.432
College D	0.117	0.090	-2.803	0.005**
College E	0.081	0.065	-3.129	0.002**
College F	0.401	0.249	-1.473	0.141
Cohort ⁵				
Cohort 2014	0.361	0.152	-2.415	0.016*
Cohort 2015	0.281	0.107	-3.324	0.001***
Other Programs	1.318	0.469	0.775	0.438

¹ There were initially 881 students across three cohorts with 229 of these student missing on at least one covariate yielding $N = 652$. Several non-parametric tests for these 229 missing students (140 College Possible and 89 Comparison students) on Spring retention for Year 1 was found to be non-significant. The other 139 students who were missing information on participation in other success programs for Year 1 consisted of 86 College Possible students and 53 Comparison students.

² Both the estimate and standard errors are reported as odds-ratios (OR), because relative risk-ratio (RR) is a probability measure which varies for different subsets of the data. However, the centered case ($p = 0.5$) is the most generally representative of the entire probability range and provides an average of all the RRs for a given odds-ratio. The general formula is $RR = \frac{QR}{1 - p + p * OR}$ for a given probability, p but simplifies to $RR = OR$ when $p = 0.5$ (e.g., Liberman, 2005).

³ Asian is the reference category for Race/Ethnicity.

⁴ College A is the reference Campus Site.

⁵ Cohort 2013 is the reference cohort.

Table 12

College Possible Effects on Retention after Year 2 of College, with Student Participation in Other College Success Programs (N = 513¹)

Independent Variables	Estimate²	Standard Error²	t-value	p-value
Intercept	0.005	0.021	-1.301	0.193
College Possible	1.464	0.303	1.844	0.065
Male	0.697	0.149	-1.684	0.092
Age	1.263	0.279	1.058	0.290
High School GPA	1.999	0.491	2.821	0.005**
PELL Eligible	0.688	0.282	-0.913	0.361
FirstGen	1.159	0.289	0.594	0.553
Race/Ethnicity ³				
Black	0.618	0.162	-1.841	0.066
Hispanic	1.234	0.492	0.528	0.597
White	0.916	0.400	-0.201	0.841
Other Non-White	0.660	0.296	-0.927	0.354
Unknown	0.312	0.225	-1.618	0.106
Campus Site ⁴				
College B	0.743	0.393	-0.562	0.574
College C	0.560	0.293	-1.106	0.269
College D	0.493	0.273	-1.279	0.201
College E	0.300	0.180	-2.005	0.045*
College F	0.864	0.393	-0.323	0.747
Cohort ⁵				
Cohort 2014	0.965	0.305	-0.114	0.909
Cohort 2015	0.700	0.208	-1.202	0.229
Other Programs	2.386	0.865	2.400	0.016*

¹ There were initially 881 students across three cohorts with 229 of these student missing on at least one covariate yielding $N = 652$. Several non-parametric tests for these 229 missing students (140 College Possible and 89 Comparison students) on Spring retention for Year 2 was found to be non-significant. The same 139 students who were missing information on Spring retention after Year 2 were also missing information on participation in other success programs consisted of 86 College Possible students and 53 Comparison students.

² Both the estimate and standard errors are reported as odds-ratios (OR), because relative risk-ratio (RR) is a probability measure which varies for different subsets of the data. However, the centered case ($p = 0.5$) is the most generally representative of the entire probability range and provides an average of all the RRs for a given odds-ratio. The general formula is $RR \equiv OR / (1 - p + p * OR)$ for a given probability, p but simplifies to $RR = OR$ when $p = 0.5$ (e.g., Liberman, 2005).

³ Asian is the reference category for Race/Ethnicity.

⁴ College A is the reference Campus Site.

⁵ Cohort 2013 is the reference cohort.

APPENDIX E: SENSITIVITY ANALYSIS FOR IMPACT EVALUATION

Table 1

College Possible Sensitivity Checks for Listwise Deletion of Observations with Missing Covariates for 2013 Cohort¹

Outcome Variables	N	Z-Statistic	p-value
Spring 2017 Cumulative GPA	11	0.913	0.429
Spring 2017 Cumulative Credits	11	-1.106	0.327
Retention for Fall 2017	12	2.345	0.061
Graduation through Year 4	12	-2.345	0.061
Continuous Enrollment through Year 4	12	-0.561	1.000

¹ For robustness, nonparametric permutation tests were conducted on those students who were dropped from the regression models due to missing values on one or more covariates. In all tests, the p-value derived from the exact conditional distribution of the Z-statistic exceeded 0.05 and thus failed to reject the null hypothesis of independence. This means that the result of the conditional Wilcoxon-Mann-Whitney test provides support that for these students, participation in College Possible is independent from each of the outcome variables. Therefore, excluding these students from the outcome analysis using listwise deletion is unlikely to alter those results in any significant way.

Table 2

College Possible Sensitivity Checks for Listwise Deletion of Observations with Missing Covariates for Combined Cohorts¹

Outcome Variables	N	Z-Statistic	p-value
End of Year 1			
Cumulative GPA	225	0.473	0.637
Cumulative Credits	225	0.325	0.746
Retention	221	-1.408	0.169
End of Year 2			
Cumulative GPA	160	0.749	0.456
Cumulative Credits	160	0.575	0.567
Retention	219	-1.241	0.254

¹ For robustness, nonparametric permutation tests were conducted on those students who were dropped from the regression models due to missing values on one or more covariates. In all tests, the p-value derived from the exact conditional distribution of the Z-statistic exceeded 0.05 and thus failed to reject the null hypothesis of independence. This means that the result of the conditional Wilcoxon-Mann-Whitney test provides support that for these students, participation in College Possible is independent from each of the outcome variables. Therefore, excluding these students from the outcome analysis using listwise deletion is unlikely to alter those results in any significant way.